An Integrated Model for Examining Factors that Influence Customers' Adoption of Internet Banking Services Provided by Commercial Banks in Jordan

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Abstract

With the Internet revolutionising the banking industry, customers nowadays expect much more from their banks, demanding more convenient, flexible, and easy-to-use financial products and services that could not be easily offered by traditional retail banking. Consequently, several new banking applications have emerged in order to cope with this demand, Internet banking (IB), as an example of these applications, is considered to revolutionise the traditional way of thinking about banking services.

Despite the potential benefits offered, Jordanian bank customers are reluctant to adopt IB services. In response to this issue, this study aims to enhance the general understanding concerning the factors that affect customers' adoption of IB in a developing country of the Middle East, namely Jordan, where the results can be also applied to other developing countries in general.

The main objective of this research was to investigate factors influencing the adoption of IB services by Jordanians. Two technology acceptance models, namely the Diffusion of Innovations Theory (DIT) developed by Rogers (1983), and the Technology Acceptance Model (TAM) developed by Davis (1989), were integrated with external variables in order to synthesize a new exploratory model; the synthesized model was then tested empirically for its predictive power.

Two data collection phases were utilised: (1) quantitative data was collected in the first phase to test the research model and confirm related hypotheses using a survey questionnaire (463 respondents); and (2) qualitative data was gathered in the second phase via a semi-structured interview exercise (six participants). This phase was incorporated in order to explore bank customers' perceptions of IB influencing factors identified in the first phase, and to provide further confirmation for the research model and hypotheses.

Results showed that eight factors directly determine customer intentions to adopt IB services. Those factors are: perceived usefulness, perceived ease of use, trialability, compatibility, observability-result demonstrability, innovativeness, government support, and information about Internet banking. Accessibility and perceived financial cost were found not to be direct predictors of intention; however, the latter has emerged to affect intention indirectly through perceived ease of use. While results indicated that personal innovativeness was found to be the most influential

predictor of intention to use IB, both directly and indirectly through perceived usefulness and perceived ease of use, perceived financial cost was the least influential factor to affect intention since it only exhibited indirect influence through perceived ease of use.

Gender, age, education, occupation, and income, all proved to be influential in determining customers' intentions to use IB services. Moreover, results revealed that users of IB were significantly different from non-users in terms of their attitudes relating to all investigated variables. Overall, the results of the current study showed that the proposed model has a good explanatory power and is therefore robust in predicting customers' intentions to adopt IB in the Middle East and in other developing countries in general.

This research contributes to the identification theory and practice of technology acceptance for Internet banking in five ways. Filling the gap in IB adoption literature in developing countries through examining the factors that might impede or encourage the adoption of these services among customers; developing and validating an integrated technology acceptance with a good explanatory power in predicting and explaining the potential users' behavioural intentions towards technology adoption in non-Western contexts; developing a valid and reliable instrument to measure individuals' intentions to use IT innovations; providing valuable insights into how to enhance customers' acceptance of IB services in a developing country context by indicating the relative importance of the identified influencing factors and providing a set of specific strategies in a form of practical recommendations designed to overcome the low adoption rate of IB in developing countries.

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Declaration

I hereby declare that no portion of this work has been submitted in support of an application for any other degree or qualification at this or any other university or institution of learning. In addition, I hereby confirm that, this thesis is solely my work and all work of others cited in this thesis have been acknowledged.

Signed: *Majed Al-Azzam*

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List of Abbreviations

ACC	Accessibility of Internet banking services
AGFI	Adjusted Goodness-of-Fit Index (Model appropriateness measure)
AMOS	Analysis of Moment Structures (Quantitative data analysis software)
ATM	Automated Teller Machine
AVE	Average variance extracted
CBJ	Central Bank of Jordan
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index (Model appropriateness measure)
CMB	Common Method Bias
COMP	Compatibility of Internet banking services
COMX	Complexity of Internet banking services
CR	Composite Reliability
DIT	Diffusion of Innovations Theory
DoS	Department of Statistics-Jordan
EFA	Exploratory Factor Analysis
GFI	Goodness-of-Fit Index (Model appropriateness measure)
GVS	Government Support
IB	Internet Banking
IIB	Information about Internet Banking
INV	Personal Innovativeness
IS	Information Systems
IT	Information Technology
IU	Intention to Use Internet banking services
KMO	Kaiser-Meyer-Olkin (Sampling adequacy measure)
MI	Modification Indices (SEM measure)
MOICT	Ministry of Information and Communications Technology-Jordan
NFI	Normed Fit Index (Model appropriateness measure)
NIACSS	National Information Assurance and Cyber Security Strategy-Jordan
NITC	National Information Technology Centre-Jordan
NNFI	Non-normed Fit Index (Model appropriateness measure)
OBS	Observability of Internet banking services
OBSR	Observability-Result Demonstrability of Internet banking services
OBSV	Observability-Visibility of Internet banking services

PC	Personal Computer
PCA	Principal Component Analysis
PEOU	Perceived Ease of Use of Internet banking services
PFC	Perceived Financial Cost of Internet banking services
PU	Perceived Usefulness of Internet banking services
RADV	Relative Advantage of Internet banking services
RMR	Root Mean Square Residual (Model appropriateness measure)
RMSEA	Root Mean Square Error of Approximation (Model appropriateness measure)
SEM	Structural Equation Modelling (Quantitative data analysis technique)
SMC	Squared Multiple Correlations (SEM measure)
SPSS 22	Statistical Package for Social Science (Quantitative data analysis software)
SR	Standardised Residuals (SEM measure)
SRMR	Standardized Root Mean Square Residual (Model appropriateness measure)
SRW	Standardised Regression Weights (SEM measure)
TAM	Technology Acceptance Model
TLI	Tucker-Lewis Index (Model appropriateness measure)
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
TRB	Trialability of Internet banking services
UK	The United Kingdom
US	The United States of America
WWW	The World Wide Web

Chapter 1: Introduction

1.1 Introduction

This chapter begins by introducing the background to the topic under investigation, and proceeds to outline the research problem. It then highlights the general aim of the study, presents a clear statement of the objectives and research questions. Next, the significance of the research is identified before ending with an overview of the structure of the thesis.

1.2 Research Background

Currently, the great number of technological changes occurring throughout the world are significantly affecting daily life. Regardless of attempts to ignore these changes, their importance is sensed everywhere. This reverberates in the way they change our understanding of the modern societies in which we live. The evolution of technology-based services is one example, reforming the traditional customer-service provider relationship, and bringing more benefits for both parties. Internet banking (IB), as an instance of such technological changes, has become a major banking tool to conduct business for both banks and customers. While customers are provided with greater control over the intended banking service, the bank ambition is to reduce traditional bricks-and-mortar banking and simultaneously enhance customer satisfaction (Pikkarainen et al., 2004; Mangin et al., 2011; Fonchamnyo, 2013).

It is believed that the emergence of IB has forced banks to place greater emphasis on improving their IT strategies in order to survive in the modern digital era (Ndubisi and Sinti, 2006). Today's customers expect much more from banking services, demanding more convenient, flexible, and easy-to-use financial products and services that could not be offered by old-style retail banking (Tan and Teo, 2000; Alnsour and Alhyari, 2011). Therefore, IB service providers are keen to accelerate the acceptance of these services by their customers, realising that delivering such services over the World Wide Web (WWW) is more cost-efficient than delivering them through the traditional physical desk (Yousafzai and Yani-de-Soriano, 2012).

1.3 Problem Outline

It is widely recognised that banking sector efficiency in any country influences that country's economic growth. Hence, a strong and growing financial sector is recognised as an important tool for maintaining a country's overall financial stability (Al-Smadi and Al-Wabel, 2011; Al-Jarrah, 2012).

Despite the global diffusion of IB worldwide, banks in many developing countries have not taken this opportunity to gain benefits from such new banking channel. That said, whilst IB is already well established in the developed countries such as those of Europe, Japan, and the US, the concept is relatively less acceptable among customers in developing countries and particularly in the Middle East.

Moreover, this reluctance to adopt IB applications is a particularly important issue for banking industry in developing countries, where these countries are facing the need to introduce Information technologies that are well-established and heavily used in developed countries in order to stay competitive in nowadays business environment. Related to economic conditions, and constraints on resources in these countries are inevitably challenge the ability of their banking sectors for successfully implementing IB services. Therefore, any research effort directed to uncover cause-effect relationships can help to understand the current situation of IB services, and have the potential to enhance the ability of such countries to respond better to IB services.

Therefore, and in order to gain a better understanding of the adoption process, and develop strategies for greater adoption, more knowledge of the factors influencing IB adoption by customers is required. Such knowledge would be especially useful in developing economies where banks still lag behind their counterparts in developed countries in the levels of IB adoption by their customers.

Therefore, it is believed that there is a need to develop and test explanatory models that may be suitable frameworks to use as foundation for both Information technology diffusions in general and IB adoption in particular, in developing countries.

In this regard, Zhu et al. (2003) and Mansumitrchai (2012) point out that the various customer adoption theories of IB that might inform implementation strategies the

developing countries have all been developed mainly for studying customers' attitudes and behavioural intentions to adopt IB services in developed countries; clearly, these theories may not be relevant in these developing countries context given the variation in challenges and the differences in economic and legal environments as well as cultural conditions that exist between markets in developed world and developing countries

Indeed, several IB researchers have argued that technology acceptance models, employed to study the adoption of IB services, reflect the attitudes, values, and beliefs of western environments where they originated (Al-Sukkar and Hasan, 2005; AbuShanab et al., 2010; Al-Smadi, 2012; Fonchamnyo, 2013). They suggest that, in order to make them relevant to developing countries, it is important to expand these models to include factors that might reflect these countries specific characteristics.

The differences that exist in different economic contexts, as well as the lack of rigorous research studies in the developing world, limit the general understanding of IB fruitful implementation amongst banks in such a world. Therefore, rigorous research is needed to enhance our understanding of what factors might influence the adoption of IB services in a developing-economy contexts (Sharma and Govindaluri, 2014).

Despite the fact that there were recently some research efforts to address technology acceptance and IB adoption in particular in the context of developing economies (e.g., Laforet and Li, 2005; Ndubisi and Sinti, 2006; Ozdemir and Trott, 2009; Kesharwani and Bisht, 2012; Fonchamnyo, 2013; Susanto et al. 2013), reviewing the literature indicated that these efforts were mainly directed to specific locations, such as Asia, Latin America, and Africa to some extent**.** Although It was also found that developing countries in the Middle East still lack such studies, suggesting that this part of the world has not yet received enough attention from researchers and that technology adoption remain an unexplored research area in these countries (Al-Somali et al., 2009; Rusu and Shen, 2011; Al-Qeisi and Al-Abdallah, 2013; Rawashdeh et al. ,2015).

Accordingly, the research work on Internet banking influencing factors in this study will be referred to from this region (the middle East), particularly in the country of Jordan as a primary focus. Customers in developing countries are usually

considered as late adopters of new Information technologies (Al-Sukkar and Hasan, 2005), and thus it is believed that the results of technology acceptance studies into countries of the Middle East can be applied to other developing countries in general based on the fact that these countries are sharing similar contextual and cultural factors to some extent.

As a Middle Eastern developing country, Jordan enjoys an important economic and political role in the region (Akhtar et al., 2013; Wansink, 2014). The regime is keen to enhance that role through improving the country's attractiveness to foreign investors, therefore, comprehensive and noticeable economic reforms have been introduced in the last ten years (Alissa, 2007; Al-Khalidi, 2013).

In Jordan, the recent economic liberalisation enjoyed by the country has placed the banking sector in a key role in the country's movement toward free market trade and globalisation. Furthermore, in recent years, bank prosperity has attracted government attention since it is hoped that banks will be capable of financing major national projects as well as dealing with potential foreign investments (Al-Shobaki et al., 2010; Nusair, 2013). By December 2014, the number of commercial banks operating in Jordan had reached twenty-one, these being thirteen national banks and eight branches of foreign banks; these banks offer their services through 6,987 branches and administrative offices over the Kingdom (CBJ, 2015). As a result, there is a high degree of competition, manifest in the quality and pricing of financial services. Accordingly, some scholars have suggested that these banks should be aware of the accelerated growth of IT applications in order to remain competitive both nationally and globally (Khrawish and Al-Sa'di, 2011).

In addition, there is obvious governmental support for the application of new IT applications and greater reliance on the Internet to conduct business and financial transactions (MOICT, 2013; Al-Qeisi and Al-Abdallah, 2013). These circumstances call for contemporary and robust banking and financial systems characterised by convenient and easy financial transactions, none of which can be achieved without IB applications.

Consequently, IB applications have developed rapidly since the year 2000 as most Jordanian banks have implemented some form of electronic service, affording various banking services to their customers (Al-Sukkar and Hasan, 2005; Alawneh and Hattab, 2009). Several researchers have also reported that most of the

commercial banks in the country remain committed to improving their IB services and actively investing in such applications (Al-Shobaki et al., 2010; Al-Smadi and Al-Wabel, 2011).

Surprisingly, however, there is a disappointing level of IB services adoption among Jordanians as reported by several researchers recently (AL-Majali, 2011; DoS, 2012; Al-Rfou, 2013; Al-Qeisi and Al-Abdallah, 2013). This is considered to be the reason for the current low profitability of these high cost investments, which has a negative impact on bank performance since revenues are less than the associated costs (Al-Smadi and Al-Wabel, 2011; Khrawish and Al-Sa'di, 2011).

Currently, understanding of this low adoption rate is still limited owing to the lack of any nationwide empirical research in the country. Hence, there is a need to remedy that situation, by examining the factors that might impede or encourage the adoption of IB services among Jordanians, and by providing insights regarding the current status of IB adoption among customers in Jordan. This study does that, and is consequently deemed a worthwhile undertaking, especially with the lack of any comprehensive research in this specific country context. Furthermore, this study's findings on potential factors influencing Internet banking adoption in Jordan are believed to provide useful insights for other developing countries where the research on IB adoption is far from adequate and needs further attention from researchers.

1.4 Research Aim, Objectives, and Questions

Even though there has been growth in IB usage in developing countries in the recent years, the related literature shows that the levels of adoption and diffusion of IB in these countries is less than anticipated. To shed some light on this issue, this study aimed to enhance the general existing understanding and knowledge concerning the factors affecting customers' adoption of IB services in the developing countries in general by focusing on a Middle Eastern country, namely Jordan, and to develop and validate an integrated model that includes these countries specific contextual factors to guide implementation.

From this broad aim, three research objectives were derived as follows:

- To identify factors influencing customers' intentions to adopt IB services in Jordan as an example of a Middle East developing country, and causal relationships among these factors.
- To investigate the existing differences in attitudes and perceptions of users and non-users toward factors underlining adoption of IB services.
- To develop and validate an integrated model from existing TAM (Technology Acceptance Model) and DIT (Diffusion of Innovations Theory), which also includes external factors appropriate to the Jordanian environment, as capable of explaining and predicting the adoption of IB services in Jordan as a Middle Eastern developing country.

In order to achieve the above research objectives, four research questions were formulated as follows:

1. What are the factors influencing customers' intentions to adopt IB services in Jordan?
2. How the factors that influence customers' intentions to adopt IB services in Jordan are related to each other?
3. Why do some Jordanian customers use IB services whilst others do not?
4. How effective is the use of the proposed model in attempting to explain and predict customers' adoption behaviour in respect of IB services in Jordan and other countries in the region?

1.5 Significance of the Research

As noted in Section 1.3 there is a gap in our knowledge relating to Jordanians' predispositions to adopt, and the resulting low IB take-up rate; a matter considered detrimental to the country's economic growth. The research undertaken in this study tries to fill that gap by providing insights from its empirical study with users and non-users, and thus it provides incremental insights towards the literature of IB, and the culture of the Middle East according to Corley and Gioia's (2011) classification of what constitutes a theoretical contribution.

Additionally, there is a shortcoming in the literature relating to technology acceptance, in that most of the models developed thus far have focused on the influence of technology characteristics on the individuals' attitudes towards adoption of an innovation; they have overlooked the importance of personal characteristics

of individuals in shaping adoption behaviour (Lu et al., 2005; AbuShanab et al., 2010; Montazemi and Saremi, 2013).

Again, the study attempts to fill this gap by integrating two well-known and respected technology acceptance models (TAM and DIT), such that both user-related and external environment-related factors were included in the research model in addition to the original constructs of the two models. Hence, it provides revelatory insights (Corley & Gioia, 2011) as a contribution to the theory of technology adoption in general, and in banking in particular.

Moreover, as of the current date, limited empirical research has been undertaken on the adoption of IB within the Middle East, and this study provides significant theoretical and managerial contributions to the existing body of knowledge concerning non-Western countries that has scientific and practical utility (Corley & Gioia, 2011). As the link between IB adoption and economic prosperity has been shown, any contribution, which improves the understanding of customers' behaviour in a developing country context, is of significance.

From a practical utility perspective, it is expected that managers and marketing practitioners in the banking sector in the Middle East will find the results of the current study a valuable resource in the preparation of their business and marketing strategies, enabling their retention of existing customers and recruitment of new ones, thereby raising the adoption rate of IB.

Finally, in highlighting the attitudinal tendencies of Jordanian banking customers, this study's findings provide a scientific utility (Corley & Gioia, 2011) by paving the way for further in-depth research in this field, and in other fields, which have been affected by technology (for example, e-government) in Jordan and other countries in the region with a similar cultural heritage.

Table 1-1 on the next page summaries the current study's contributions to the existing body of knowledge based on Corley and Gioia's (2011) theoretical contributions model, these contributions are discussed in detail on page 271 in chapter 8.

Table 1-1: The Study's Contributions to Knowledge Classification *

Classification		Contribution
Originality	**Incremental**	- Identifying important predictive factors of customers' intentions to adopt Internet banking services in a developing country context. - Confirming the importance of the external variables (user-related and environment-related) to the individual's intention to accept a particular information technology application. - Providing new insights about the differences between Internet banking users and non-users.
	Revelatory	- The validation of the research model as a robust tool in explaining and predicting customers' acceptance of new technologies. - Expanding the existing knowledge by providing a new perspective to the TAM/DIT integration, in explaining the behavioural intention towards technology adoption in a developing country context. - Providing valuable insights about customers' perceptions about Internet banking resulted from qualitative phase.
Utility	**Scientific**	- Developing a parsimonious, reliable, and valid instrument designed to measure the individual's perception towards his/her intention to adopt an IT application. - Offering a robust technology acceptance model that could be applied to other developing countries, thereby providing an effective tool to enhance the acceptance of IT applications in such countries.
	Practical	- Help bank executives to develop appropriate strategies aimed at increasing future Information technology applications acceptance through appreciating the influence of the research model factors on the customers' adoption behaviour. - Providing Internet banking decision-makers with a better understanding of the differences between IB users and non-users. - Offering a set of specific strategies (recommendations) designed to facilitate better implementation of new Information technology applications in developing countries.

*Based on Corley and Gioia (2011).

1.6 Structure of the Thesis

The thesis consists of eight chapters, as follows:

Chapter 1 has introduced the research background, the nature of research problem, the research aim, objectives, and questions, and a brief overview of the research methodology. It has shown the nature of the study as being one that gathers

secondary and primary data, with the intention of generating a country-specific model for the adoption of IB.

Chapter 2 critically reviews the literature related to IB and explores previous research on the factors affecting its adoption. It also reviews and compares some of the well-known models and theories of innovation adoption, as a means of laying the foundation for the development of the theoretical framework used in this study. The model is subsequently developed as an integrated TAM/DIT model incorporating five external variables. These variables are defined, the rationale for their inclusion discussed, and hypotheses proposed for the causal relationships among those variables, in explaining and predicting customers' adoption behaviour of IB in Jordan as a Middle Eastern developing country.

Chapter 3 introduces the research methodology adopted to achieve the aim and objectives of the study. This includes data collection procedures and methods of analysis. It begins by presenting the philosophical position assumed by the researcher, and proceeds to highlight the research approach before discussing the methods used for the collection of both quantitative and qualitative data (via questionnaire and semi-structured interviews). Data gathering process is fully described, including that associated with the pilot studies. Issues relating to validity and reliability of data collection are discussed. Moreover, the target population and sampling strategy in each phase are described, and data analysis techniques are presented. The chapter ends by discussing ethical considerations made in the study.

Chapter 4 reports the results of the descriptive data analysis, and starts with a preliminary consideration of the data; this involves the response rate and the process of data screening and cleaning. The demographic profiles of the respondents are discussed, and a preliminary reliability check of the questionnaire's main constructs is made. Frequency and distribution statistics for the main observed constructs are explained. Finally, comparisons are provided between IB users and non-users based on their demographic characteristics as well as on their attitudes of the current research variables.

Chapter 5 continues the process of data analysis by reporting the results of inferential data analysis including Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and hypothesis testing using Structural Equation Modelling

(SEM). This chapter is divided into three parts; the first part focuses on the data reduction and factor extraction achieved through EFA. The second part reports the findings of CFA and discusses the procedures for the measurement model validation. The last part provides a detailed discussion of the structural model and the results of hypothesis testing.

Chapter 6 presents the analysis of the qualitative data gathered through semi-structured interviews with six bank customers in Jordan, and offers further confirmation of the research model and hypotheses. It also provides explanations for the results obtained after testing the hypotheses. This chapter begins by presenting the demographic profiles of the interviewees, and then proceeds to report the findings relating to the factors that influence the adoption of IB in Jordan. It also discusses the interviewees' responses regarding the hypotheses of the Accessibility (ACC) factor, followed by incorporating the qualitative data findings with the final research model.

Chapter 7 provides an interpretation of the main findings of both research phases (quantitative and qualitative) in light of the literature reviewed in Chapter 2. It concentrates on how these findings provide answers to the research questions, and thereby satisfy the objectives of the study.

Chapter 8 summarises the key findings of the research, draws a conclusion based on these findings, discusses the limitation of the research, presents theoretical and managerial implications, and highlights the contribution to the existing body of knowledge. Finally, suggestions for future research directions are offered.

Chapter 2: Literature Review and Theoretical Framework

2.1 Introduction

This chapter reviews and critically analyses the extant literature in order to explore various aspects of customers' IB adoption behaviour as well as to build the foundations for developing a theoretical framework and proposing a research model for IB adoption in a developing country context.

The chapter is divided into two main parts. In the first part, the concept of IB adoption is discussed and previous research studies in the field are reviewed, concentrating mainly on a few key areas, these being: the definition of IB and its benefits for banks and customers, the importance of customers' adoption, previous and current research trends on IB adoption, theories and models that have been developed and used to explain and predict technology adoption, previous research on IB, and a review of previous IB adoption in the current study specific context (Jordan).

The second part of the chapter presents a proposed theoretical framework and develops hypotheses based on the findings of literature reviewed in the first part of the chapter. It begins by introducing the rationale for integrating the TAM (Technology Acceptance Model) and DIT (Diffusion of Innovations Theory) in one research model, continues by discussing the proposed framework variables and related hypotheses, and concludes with the presentation of the proposed model.

2.2 Internet Banking (IB)

The popularity and widespread use of the Internet have dramatically affected the everyday life and social behaviour of individuals since it was first introduced. Moreover, particularly, in the 21st century, IT has shaped the way in which financial transactions are conducted (Fonchamnyo, 2013). Consequently, several new banking applications have emerged in order to cope with that, and IB as an example of these applications is considered to alter the traditional way of thinking about banking services (Tan et al., 2010; Al-Ajam and Nor, 2013a).

IB has led the financial sector to a new era of banking in which customers are able to satisfy all their banking needs at their total convenience. Hence, the advantages resulting from IB have convinced customers in many countries to consider it as their main banking channel and to prefer it to bricks-and-mortar traditional banking (Khrawish and Al-Sa'di, 2011). It is appropriate to note that in the IB literature, the

term IB is sometimes used interchangeably with other terms such as: electronic banking or online banking (Tan et al., 2010; Nasri, 2011).

According to Pikkarainen et al. (2004), IB first appeared in the mid-1990s as a result of reorienting the mode of banking services delivery toward self-service channels. Initially, IB was mainly used by banks as a marketing channel through which they could offer information about their different financial products and services (Daniel, 1999; Sathye, 1999; Tan and Teo, 2000). Later and due to advancements in Internet applications and the development of more secure electronic transactions, most large banks increased their reliance on IB by expanding its transactional capabilities while also retaining its marketing uses (Daniel, 1999; Sathye, 1999; Tan and Teo, 2000; Al-Ajam and Nor, 2013a).

Internet (Online) banking is defined by Pikkarainen et al. (2004) as an Internet portal, through which customers can perform several banking services electronically. A wide variety of banking services ranging from the simple transaction of bill payment to more complicated ones such as managing investments, are available by this means. Aladwani (2001) provides a similar definition, describing IB as a web-based banking application through which customers can access their own bank accounts while navigating the Internet. Besides, he adds the point that they can do this at their convenience, from any place and at any time, and points out that when conducted within the physical framework of a bank, such activity can be arduous and time-consuming for customers. Aladwani (2001) also proposes (based on Conger and Mason (1998)) that the launch of IB services proceeds through three broad stages: pre-development, development, and post-development.

1- The pre-development stage represents the time before constructing the bank banking services website. At this stage, the bank management begin to consider the idea of implementing IB, and efforts are mainly directed to cost-benefit analysis as well as to the technical requirements. Hence, this is the planning stage, and should include the identification of specific objectives and details of how to achieve them.

   Obviously, top management support is considered crucial at this stage, as this is necessary to ensure the availability of any need for financial, human, technical resources as well as to create the appropriate atmosphere for such integral change.

2- The development stage encompasses the practical implementation of the IB portal. Several technical and marketing issues should be addressed properly in this stage. Website design layout, security and privacy matters, ease of use, available technical support, and the availability of 'how to use' information are among these concerns.

3- The post-development stage is the point at which the bank evaluates the feasibility of the new technology. At this stage, issues such as: customers' initial feedback, usage levels, technical problems, and IB effects on the bank profits and operating costs should be addressed in order to ensure successful performance in the future.

By using IB services, customers are able to conduct a broad variety of banking transactions through their banks' websites (Tan and Teo, 2000). Moreover, there is pressure for them to do so, since as Padachi et al. (2008) argue the intense competition worldwide means that IB has become a necessary distribution channel for most banks. In the opinion of Padachi et al. (2008), IB stands as a reasonable strategy for financial firms worldwide wishing to expand their base of satisfied customers. These researchers claim that firms can deliver more quality products and services using this technology as it provides the most cost-efficient distribution channel.

Furthermore, while IB is considered a clever choice to retain existing customers and enhance their loyalty, it also plays an important role in attracting new ones through the provision of information about the bank and its products via the bank website (ibid). Bradley and Stewart (2003) claim that IB is the most radical innovation amongst other service delivery channels, since it has introduced many changes to the banking industry. Indeed, it represents an entirely new and alternative distribution channel whereby customers can perform most banking transactions virtually without ever walking into the bank's physical facilities. Clearly, this brings many customer benefits, and as noted by Kesharwani and Bisht (2012), most traditional banks have moved to IB in order to sustain their competitiveness since it is clear that there is a huge number of Internet users who are predisposed to this technology.

By using IB applications, it is possible for banks to offer a number of financial services over twenty-four hours a day (Eriksson et al., 2005; Sayar and Wolfe,

2007). Hence, IB is more convenient and saves time compared to traditional banking. For example, by using IB, customers are able to create an account, obtain up-to-date account balances, transfer funds between accounts, pay bills, and interact with the bank through e-mail (Rusu and Shen, 2012).

In addition to its benefits for customers, IB is considered by banks as an alternative distribution channel offering them more customer reach, and reducing the cost of offering banking services (Sathye, 1999). Moreover, through its ability to acquire important consumer behaviour information, IB can be used as a strategic weapon, helping the bank to enhance its customer satisfaction levels. Accordingly, most financial institutions have considered IB as a vital technology that presents an organisation with a dynamic, non-traditional distribution channel, through which services can be delivered at less cost and more conveniently without undermining their existing performance levels. Likewise, banks believe that by reducing costs and being better able to fulfil customers' needs; IB could act as a means of achieving competitive advantage in their highly competitive industry (Eriksson et al., 2005; Sayar and Wolfe, 2007).

Nonetheless, these advantages are not achievable without customers' acceptance and adoption of IB services. Therefore, IB services providers aim to enhance the acceptance of these services by developing a comprehensive understanding of the factors that influence their customers' intentions towards banking via the Internet. Such understanding will enable decision-makers to develop strategies and polices that enable the maximisation of the potential benefits of IB (Hanafizadeh et al., 2014).

2.3 IB Adoption-Previous Research

Due to its considerable possible benefits for banks, businesses, and customers, IB has attracted special attention from financial institutions, governments, and researchers in the last two decades. Indeed, Venkatesh et al. (2003) have claimed that studying users' acceptance of new technologies is frequently considered as one of the most mature research areas in the IS literature. Moreover, most academics have agreed that understanding customers' adoption of IB has become a primary issue for financial institutions in order to remain competitive in the current growing cyber-marketplace (Chatchawanwan et al., 2009). Certainly, many research findings reveal that the successful implementation of IB does not necessarily

depend on the bank offering the service, but rather on the customer adoption processes (Pikkarainen et al., 2004).

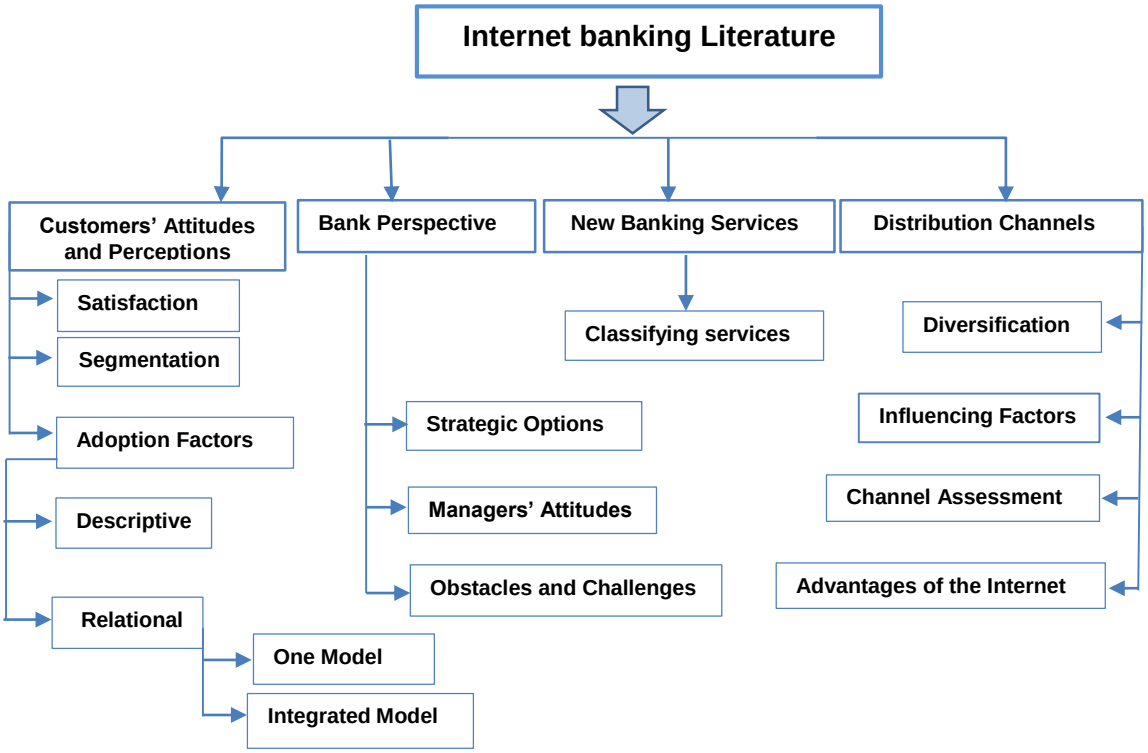
Venkatesh and Davis (2000) for instance, assert that customers' motivation to adopt new IS largely determines whether these systems will be successful and ultimately profitable for the organisation. Obviously, without customers' acceptance of the new technology, organisations will not enjoy the related financial and marketing benefits. Therefore, Venkatesh and Davis (2000) suggest that in order to increase customers' acceptance, organisations need to predict and explain why people accept or reject IS applications.

Gerrard and Cunningham (2003) claimed that establishing and providing IB applications involves a considerable amount of investment by banks. At the same time, other scholars have claimed that providing banking services over the web would allow banks to cut their operating costs, which are much higher in traditional branches where the same services are offered (Sathye, 1999; Polatoglu and Ekin, 2001; Yousafzai and Yani-de-Soriano, 2012). Consequently, from these cost-benefit assessments, it is clear that attracting more online customers would enhance bank profitability, whilst also providing greater justification for investment in the technology. Therefore, in order to expand their online population, banks must acquire a full understanding of the key determinants (drivers and inhibitors) of customers' decisions to adopt or reject IB (Chong et al., 2010; Yousafzai and Yani-de-Soriano, 2012).

Not surprisingly, there has been a growing body of academic research in the context of IB adoption which has focused on the identification of the influential factors in this respect (Hernandez and Mazzon, 2007; Anuar et al., 2012; Fonchamnyo, 2013). According to Hanafizadeh et al. (2014), despite the fact that IB was introduced during the mid-1990s, the IB adoption literature was not notably addressed until the end of the 20th century. Since then, the attention to IB adoption has increased over time and is still considered an important area of research, particularly because of the opportunities created by the Internet and its related applications compared to the previous operations (Akinci et al., 2004). According to Akinci et al. (2004), previous research on IB can be classified into four inter-related areas: new banking services, distribution channels for these services, customers' perception about IB adoption, and IB from bank and bank managers' perspectives. Figure 2-1 below

shows the classification of IB literature based on Akinci et al. (2004) and Hernandez and Mazzon (2007).

Figure 2-1: Classification of IB Literature Adopted in the Study



*By the researcher, Akinci et al. (2004), Hernandez and Mazzon (2007), and Hanafizadeh et al. (2014).

Research on IB as a new banking method aims at classifying and studying different forms of IB-related services offered by financial institutions (Chou and Chou, 2000; Howcroft et al., 2002). Studies on distribution channels' intentions examine the advantages of the Internet over traditional banking channels (Black et al., 2002), investigate the current usage levels and advantages of financial distribution channels, identify factors influencing the distribution strategy and the channel mix (Byers and Lederer, 2001), and evaluate the rapid diversification in the distribution channels (Jayawardhena and Foley, 2000).

The IB literature on banks and bank managers' perceptions is usually linked to bank managers' attitudes and perceptions of electronic channels (Daniel, 1999), financial institutions' strategic options resulting from the emergence of new distribution channels (Aladwani, 2001), and obstacles and challenges facing IB providers (Daniel, 1999; Aladwani, 2001).

Research on customers' attitudes and perceptions about IB adoption falls into the following groups:

-Segmentation of bank customers based on behaviour and relationship with banks as assessed through an evaluation of their attitudes and motives (Machauer and Morgner, 2001).

-Identifying factors influencing the IB adoption decision by customers (Sathye, 1999; Lichtenstein and Williamson, 2006; Al-Somali et al., 2009; Al-Qeisi and Hegazy, 2015).

- Studying customers' satisfaction and its determinants (Polatoglu and Ekin, 2001; Akram and Asghar, 2012).

2.3.1 Customers' IB Adoption Research

Since the current research aims at identifying influential factors regarding IB adoption from the customer perspective, an in-depth analysis of customer perception studies (specifically studies of adoption factors) rather than other research categories is now made. A systematic review of the IB adoption literature by Hernandez and Mazzon (2007) revealed that such studies usually fall into two main categories, descriptive and relational.

1) In the descriptive studies, researchers have focused on identifying IB users' attitudes and characteristics, their motivations for, and predispositions against the adoption of adoption IB.

Sathye (1999), for example, concluded that security concerns, lack of awareness about IB and related benefits, and unreasonable pricing were identified as major obstacles to IB adoption by Australian customers. The results of the study showed an insignificant effect of customers' characteristics (e.g. age, occupation, income, and education) on their interest in using IB services. Mattila et al. (2003) analysed mature Finnish customers' IB behaviour, finding IB to be the third most popular method of payment among them, and that various demographic characteristics (age, income, and education) had a significant positive effects on adoption behaviour. Perceived difficulty in using computers, the lack of personal service in IB, and security issues were found to be the main barriers to IB adoption by mature customers.

Eight factors were identified by Gerrard et al. (2006) explaining why consumers in Singapore did not become IB users. The most frequently mentioned factors were perception about risk, lack of perceived need, lack of knowledge of the service, inertia, inaccessibility, the lack of human touch, pricing, and IT fatigue. Their research reported that the majority of IB users were males, higher income, and well-educated individuals. These individuals had Internet experience, were aware of IB, and had enough knowledge about it.

In their study in Ghana to investigate the customer-bank relationships. Also how Internet adoption might improve the relationship between banks and their corporate customers, Woldie et al. (2008) indicated that 33% of the respondents had not heard about IB. They also found that while security concerns were the major barrier to the adoption of IB for the majority of users, it was customers' ability to access their account balance, and the ability to understand their specific needs that featured as the top requirements of a bank wanting to foster good customer-bank relationships.

Aslam et al. (2011) focused on active Internet users in their study examining IB adoption barriers living in non-metropolitan areas of Pakistan. Their findings showed that the lack of human service and personal relationship with bank staff, low perceived value of IB as compared to traditional banking, and lack of information were perceived as the most important barriers. Security concerns and high financial risks were perceived to be moderately significant barriers. Aslam et al. (2011) recommended that banks should identify the information needs of their customers in order to establish effective communication channels to deliver enough information about the benefits and uses of IB as well as developing a quay relationship with customers.

2) Relational studies, on the other hand, aim to understand and explain the relationships among various factors influencing IB adoption by customers. In such studies, researchers usually use different models and theories to explain and predict IB acceptance behaviour.

In this regard, most such studies have borrowed models that have been used in the technology acceptance context. The obvious reason for this choice is the broad assumption that IB is a new technology, which implies the possible theoretical validity of these models for studying the behaviour of customers towards it (Chong et al., 2010; Lai et al., 2010; Al-Ajam and Nor, 2013a). Indeed, an extensive literature

review has revealed that four technology acceptance models have been widely applied to the context of IB adoption. These theoretical models were originally developed in IS, psychology, and sociology and were found to explain over 40% of the variance in the individual's intention to use technology (Davis 1989; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Sun and Zhang, 2006), and are:

1- The Theory of Reasoned Action (TRA) introduced by Fishbein and Ajzen (1975)

2- The Theory of Planned Behaviour (TPB) by Ajzen (1991)

3- The Technology Acceptance Model (TAM) by Davis (1989)

4- Diffusion of Innovations Theory (DIT) by Rogers (1983)

In order to provide a rationale for the choice of the model(s) to use in order to support the current research model here, a detailed review of the abovementioned models is now undertaken to evaluate their relative strengths and weaknesses.

2.3.2 IB Adoption Models and Theories

1. Theory of Reasoned Action (TRA)

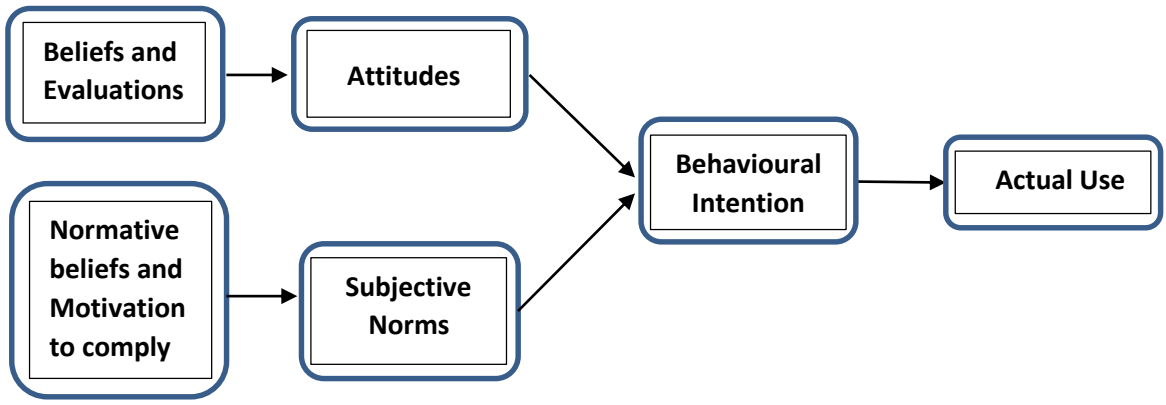
The TRA as first introduced by Fishbein and Ajzen (1975), provided a well-established model that was widely adopted to examine consumers' intended behaviour in many research contexts. The TRA assumes that individuals are rational and will only take action after a careful evaluation of the information available to them. Moreover, individuals usually consider the consequences of their behaviour before they decide to be involved in a particular behaviour or not (Fishbein and Ajzen, 1975).

According to the TRA framework shown in Figure 2-2 on the next page, behavioural intention is an immediate determinant of an individual's behaviour. Behavioural intention, which refers to the likelihood of an individual's decision to act in a certain way, is determined by the individual's attitude and subjective norms. Fishbein and Ajzen (1975) state that attitude towards a given behaviour is defined as "an individual's generally positive or negative feeling (evaluative affect) about performing the target behaviour". Subjective norm is defined as "the person's perception that most people who are important to him think he should or should not perform the behaviour in question" (ibid, p.302). Whilst attitude is considered a

personal factor related to the individual's judgement concerning a particular behaviour, subjective norms reflect the social influence.

According to the TRA, the attitudes towards a behaviour are determined by the product of the individual's beliefs about the consequences of the behaviour multiplied by the evaluation of the importance of these consequences. The subjective norms, on the other hand, reflect the product of the individual's normative beliefs; these are the "person's beliefs that the salient referent thinks he should (or should not) perform the behaviour" (ibid, p.302), and the motivation to comply with that recommendation. Ajzen and Fishbein (1980) also indicate that the relative weights of the attitudinal and normative factors may vary from one person to another.

Figure 2-2: Theory of Reasoned Action (Fishbein and Ajzen, 1975)



Despite the fact that the TRA has gained wide recognition among social sciences and technology acceptance researchers, it has several critics. For example, Sheppard et al. (1988) conducted two meta-analyses of 87 studies to examine the effectiveness of the TRA, and found that despite the model's strong predictive power of consumer intentions and behaviour across research boundaries, some modifications could be introduced to the original TRA model to improve its generalisability. They proposed modifications to account for goal intentions, choice situations, and differences between intentions and estimation measures. Their argument was that the TRA is unable to predict outcomes from behaviour since it deals with the prediction of behaviour rather than outcome of behaviour. Davis (1989) argued that, if the TRA assumption that any other factors' influence on behaviour would be only indirectly through TRA main factors is true, then, it would be possible to use attitudes and subjective norms as a common frame of reference

to integrate various research studies. He indicated that the TRA is a general model, which does not specify the beliefs that are operative for a given behaviour.

Another limitation of the TRA is the underlying assumption that the individual's behaviour is under volitional control, and hence that the individual determines the situation and can decide whether or not to perform a particular behaviour with confidence. However, if this assumption is not valid in a given situation, the intention-behaviour relationship will be weak because the individual's self-control is more difficult to achieve. Therefore, it is believed that the TRA is unable to predict situations in which individuals have low levels of volitional control such as in impulsive decisions, irrational actions, or any spontaneous behaviour that is not consciously considered (Ajzen, 1985).

2. Theory of Planned Behaviour (TPB)

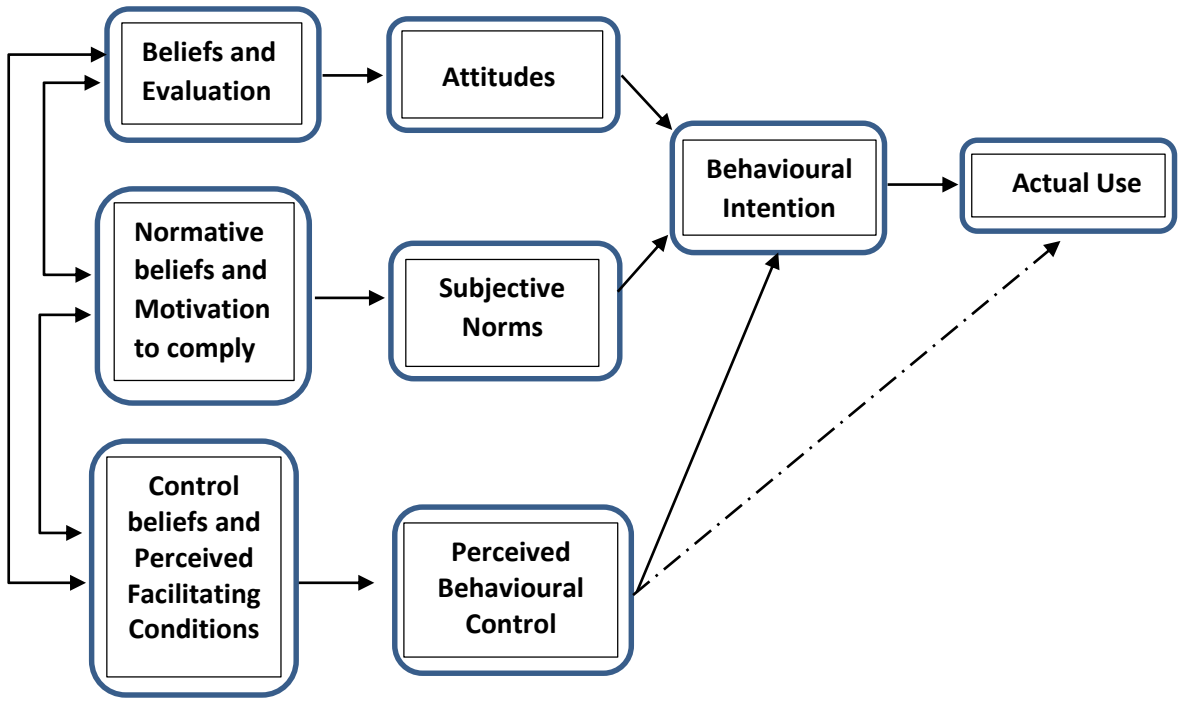
The TPB was proposed by Ajzen (1985) as an extension to the TRA in order to overcome the non-volitional control limitation. The TPB extends the TRA to account for conditions where individuals do not have full control over the situation. According to the TPB (Figure 2-3 on the next page), three types of beliefs usually determine the individual's behaviour; firstly, those about the consequences of the behaviour and the assessment of these consequences; secondly, those about the normative expectations of others and the motivation to comply with these expectations; and thirdly, those about resources and opportunities available to the individual and predicted difficulties towards performing the behaviour (Ajzen, 1991).

In addition, the TPB agrees with the TRA in that the individual's behaviour is a function of behavioural intention, which in turn is a function of three factors rather than two, these being: attitude, subjective norms, and perceived behavioural control. The new factor was added to the TRA model in order to deal with situations where individuals have less control over their own behaviours.

As shown in Figure 2-3, the three determinants of behavioural intention are attitude, subjective norms, and perceived behavioural control. According to Ajzen (1991), perceived behavioural control is the individual's perception of the availability of the resources and opportunities required to perform a given behaviour as well as any difficulties expected while doing it. This implies that individuals who possess the pre-requisite resources and opportunities would perceive that they have complete

control over the target behaviour and hence, expect less problematic situations while performing it. Moreover, the TPB assumes that perceived behavioural control is held to influence both intention and actual behaviour. Its effect on behaviour can be direct or indirect (through behavioural intention). While in the first case, it directly influences behaviour and reflects actual control, in the second case it does not reflect actual control, and influences the behaviour indirectly through behavioural intention. This suggests that in order to predict a given behaviour, one should first determine whether the individual has complete control over the behaviour under consideration or not (under volitional control).

Figure 2-3: Theory of Planned Behaviour (Ajzen, 1991)



Hence, the inclusion of the additional factor in the TPB reflects the individual's concerns about the barriers and the facilitating conditions that may hinder or enhance his/her ability to perform the behaviour, which in turn will affect his/her attitude and intention to perform the behaviour (Taylor and Todd, 1995). According to Madden et al. (1992), more prediction accuracy for both dependent variables (behavioural intention and actual behaviour) was achieved by including perceived behaviour control in the TPB model. Therefore, it is believed that the TPB explains considerably more variation in behaviour than the TRA.

However, despite this improvement, the TPB is not free from criticism. In this respect, Al-Qeisi (2009) observes that whilst the TPB is considered to overcome the volitional control limitation of the TRA where behaviours are assumed deliberate and planned, it does not show how people plan and how the planning mechanisms relate to the TPB. The presupposition about motivated individuals could be tricky in many settings since individuals have different belief structures when performing particular behaviours (Taylor and Todd, 1995).

Ajzen (2002) also disclosed some difficulties associated with the measurement of perceived behavioural control. He suggested a similarity between this concept and others found in other personal behaviour models. Moreover, he admitted the misleading previous use of perceived behavioural control and self-efficacy interchangeably since they are in fact two different concepts. In order to avoid any confusion, he recommends the term perceived behavioural control be read as 'perceived control over performance of behaviour'.

3. Technology Acceptance Model (TAM)

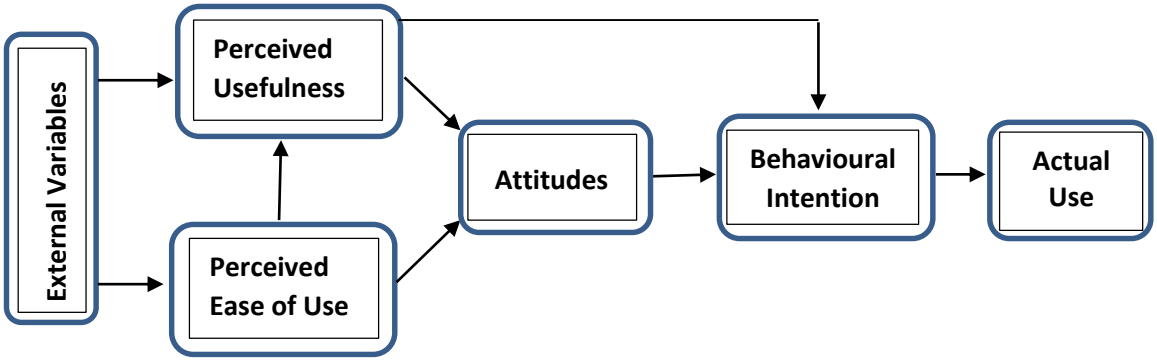
Depicted in Figure 2-4 on the next page, the TAM originally introduced by Davis (1986) and further Davis (1989), is the most cited amongst technology acceptance models. The popularity of the TAM is owed mainly to the following characteristics: specific attention to IS usage, its roots are in social psychology theory (TRA), its parsimoniousness, and the empirical evidence of its applicability in different settings from previous research (Pikkarainen et al., 2004; Ozdemir and Trott, 2009; Lai et al., 2010).

Since it was developed from the TRA, the TAM was specifically designed to predict human behaviour in the context of new technology acceptance. According to the TAM, the actual adoption of new technology is determined by the intention to use it, which in turn is conditioned mainly by the individual's attitudes towards two fundamental qualities of an information system, namely its Perceived Usefulness (PU), and Perceived Ease of Use (PEOU) (Davis 1989).

For more than a decade, many researchers have recognised the importance of PU in the IB adoption context. It considered as the subjective likelihood that a new banking technology can positively enhance the user's completion of a particular task (Polatoglu and Ekin, 2001; Pikkarainen et al., 2004; Eriksson et al., 2005;

Fonchamnyo, 2013). Furthermore, previous research studies have ascertained the significant effect of PU on technology users' behavioural intentions for adoption. According to these studies, the more IB users feel that using the service is useful for them in terms of speed, convenience, etc., the more likely they will be willing to adopt it.

Figure 2-4: Technology Acceptance Model (Davis 1989)



Perceived Ease of Use (PEOU), on the other hand, has been shown to be another key determinant of innovation adoption that has a positive influence on the acceptance of a particular information system. According to Davis (1989, p.320), PEOU refers to "the degree to which a person believes that using a particular system would be free of effort". He argues that the probability of accepting a new IT application increases as its users perceive it to be less difficult to perform than another application, and hypothesises that PEOU can be considered as an assessment of psychological and mental efforts that an individual would exert when dealing with a certain type of technology (ibid).

In IB literature, it has been theorised that effort-free services could lead to better utilisation of the technology. In particular, an individual's personal efficiency will be improved through reducing the time and effort needed to conduct banking transactions. Hence, it has been widely agreed that easy-to-use IB services will increase the probability of acceptance by customers (Eriksson et al., 2005; AbuShanab and Pearson, 2007; Fonchamnyo, 2013). The subjective norms in the TRA are not included explicitly in the TAM. Rather, Davis (1989) suggests that subjective norms to be included among the external variables that influence PU and PEOU. The inclusion of such external variables is supposed to improve the ability of the TAM to predict users' acceptance behaviour. As a result, and based on the

Davis (1989) recommendations, IB acceptance researchers have introduced external factors to the original model in attempts to enhance its predictive power.

Examples of IB scholars' attempts to expand the original TAM by adding different external factors are: trust (Wang et al., 2003; Al-Sukkar and Hasan, 2005; Eriksson et al., 2005; Kesharwani and Bisht, 2012; Al-Ajam and Nor, 2013b; Fonchamnyo, 2013; Montazemi and Saremi, 2013), computer self-efficacy (Wang et al., 2003; Rusu and Shen, 2012; Medyawati et al., 2011), information about IB on the website (Pikkarainen et al., 2004; Al-Sukkar and Hasan, 2005; Yousafzai and Yani-de-Soriano, 2012), security and privacy (Fonchamnyo, 2013; Medyawati et al., 2011), intensity of Internet usage (Lassar et al., 2005), convenience (Rusu and Shen, 2012; Fonchamnyo, 2013), innovativeness (Lassar et al., 2005; Gounaris and Koritos, 2008; Muhammad and Rana, 2012; Montazemi and Saremi, 2013), perceived financial cost (Nor et al., 2011), information about IB (Pikkarainen et al., 2004; Ozdemir and Trott, 2009).

Figure 2-4 also shows that the TAM assumes PU to be influenced by PEOU. According to Davis (1989), the more user-friendly the technology, the more users will perceive it important and useful for them. In an IB context, it is believed that high levels of PEOU by customers would convince them that this banking method is useful and important for satisfying their banking needs. In other words, the positive influence of PEOU on PU would increase the perceived value of IB services by customers, which in turn would help them to discover its related benefits and advantages (Suh and Han, 2002; Giovanis et al., 2012; Maditinos et al., 2013).

Although the attitude variable formed an individual construct in the original TAM, a follow-up study by Davis et al. (1989) revealed that this construct could be excluded from the model due to its weak mediating effect on the model's overall explanatory power. They argued that if a particular system is perceived to be useful and easy to use, individuals might have high behavioural intentions despite not having positive attitudes towards it. Moreover, Taylor and Todd (1995) highlight that as the main focus of the TAM is to predict the individuals' future behaviours based on their intentions, attitudes would not have an important role since intentions will be formed mainly based on the system performance measures rather than on an individual's simple evaluation of what is favourable or not.

Despite the fact that the TAM has been one of the most utilised models for studying technology acceptance over the last thirty-five years, research on the TAM has shown that it has some limitations. One limitation reported by many researchers is its prediction of individuals' behaviour based on self-reported usage measurement scale rather than on actual use indicators. A meta-analysis conducted by Yousafzai et al. (2007) to analyse the empirical findings of the TAM, revealed that most TAM-based technology acceptance studies adopted self-reported measurements to measure users' behaviour, assuming this would reflect the actual behaviour. Taylor and Todd (1995) also reported the limited ability of the TAM to provide clear recommendations related to IS design and implementation in order to improve users' acceptance levels.

Furthermore, the explanatory power of the model is questionable since many studies reported weakness in this respect; other researchers argue that this explanatory power is sensitive to the research method used and the sample involved. For example, after a systematic analysis of the explanatory and situational limitations of existing technology acceptance studies, Sun and Zhang (2006) concluded that experimental TAM-based studies have demonstrated higher explanatory powers than field studies. Moreover, field studies using students as subjects were found to have higher explanatory powers than those involving general users (such as knowledge workers and other professionals). They also reported that while most TAM relationships have been statistically significant in previous studies, indicating robustness of the TAM, these relationships showed controversial results. For example, some studies showed that PEOU has a significant effect on behavioural intention while other studies showed the opposite. They also indicated a variation in the strength of relationships among the model constructs. For example, the influence of PEOU on attitudes, behavioural intention, and on actual use appears less robust than that of PU.

Finally, many researchers argue the limited ability of the two TAM constructs to predict users' technology adoption behaviours in more voluntary settings. For example, Dabholkar and Bagozzi (2002) highlight the difference between using the TAM in work settings where it was specifically designed, and using it to study consumer behaviour in marketing. They argue that while in work settings the subjects have to use the system as part of their job, consumers in the marketing setting have more choices, which makes using the system voluntary. Therefore,

they questioned the adequacy of the model's fundamental constructs (PU and PEOU) in more complex and volitional situations where many users' personal characteristics, social, and economic variables may be involved in shaping consumers' behaviour. Accordingly, many researchers recommend including these variables and other technology characteristics, and cultural variables when studying technology acceptance behaviour using the TAM in marketing (Lu et al., 2005; Yousafzai et al., 2007; Montazemi and Saremi, 2013).

4. Diffusion of Innovations Theory (DIT)

The DIT was introduced by Rogers (1983) and was further developed by him in 1995 and in 2003. The DIT has acquired wide recognition among IB adoption researchers (Maditinos et al., 2013). Originally, Rogers (1983) developed this model in order to explain how the diffusion of innovations takes place through communication among members of social systems. According to the theory, the individual gathers information about an innovation in order to form a perception about it; later, these perceptions serve as the drivers that influence his/her decision to accept or reject the innovation (Moore and Benbasat, 1991; Agarwal and Prasad, 1998).

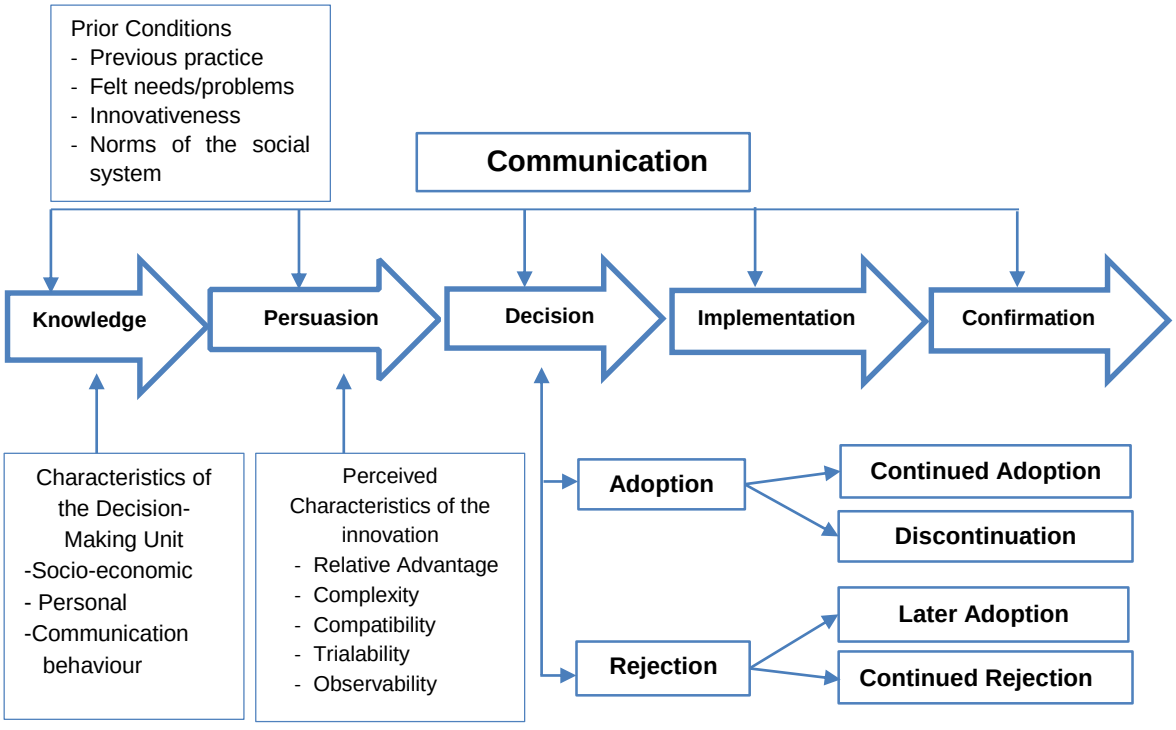
Rogers (1983) divides the innovation-decision process through which an individual decides to adopt or reject an innovation into five main stages shown in Figure 2-5 on the next page. In the first stage, users are provided with knowledge about an innovation; in this stage, an innovation is introduced to potential users in order to create an awareness about its existence and to provide them with necessary information about how they can use it properly. While awareness can be achieved through different media tools, know-how can be achieved from change agents and by formal training or education offered by the organisation. Persuasion represents the second stage where individuals start to gather credible information from different sources about the innovation in order to form favourable or unfavourable attitudes about it. These attitudes are expected to lead the individuals to change their future behaviours.

In the decision stage, individuals reach a decision about the innovation (accept or reject). Rejecting the innovation can take two forms: active rejection where the individual decides not to use the innovation after test-driving it, or passive rejection where s/he rejects the idea of switching to new innovations (even on trial basis). On the other hand, if the individual chooses to accept the innovation s/he will begin to use it, in what is known as the implementation stage. In the implementation stage,

individuals welcome the innovation into their lives. Finally, in the confirmation stage, individual reinforce the decision to adopt based on their early usage experiences.

Moreover, Rogers (1983) defines the rate of adoption for an innovation as the relative speed with which an innovation is adopted by members of a particular social system, generally measured by the number of innovation adopters in a specified period of time. He also highlights that the rate of adoption for an innovation depends mainly on five different attributes of an innovation: Relative Advantage (RADV), Complexity (COMX), Compatibility (COMP), Trialability (TRB), and Observability (OBS). Later, he claimed that these five attributes explain 49-87% of the variance in the rate of adoption of a particular innovation (Rogers, 2003).

Figure 2-5: The Diffusion of Innovations Theory Framework (Rogers, 1995)



According to Rogers (1983), RADV is referred to as the extent to which potential innovation adopters perceive the innovation as being more preferable than its original idea, product or service it replaces, and simultaneously shows the benefits associated with the adoption of this new technology. COMX, on the other hand, is described as the perception of a potential user about the level to which an innovation is difficult to understand or to deal with (ibid). Additionally, COMP is referred to as the degree to which using particular innovation is consistent with customers'

experiences, needs, and value systems. TRB represents the range to which customers are allowed to try or test the new product or service prior to their formal use of it (ibid).

Lastly, Rogers (1983, p.232) defines OBS as “the degree to which the results of an innovation are visible and communicable to others”. Thus, it appears that it will be easier to diffuse an innovation if its benefits are highly visible to users and other people in a certain social context (ibid). However, Moore and Benbasat (1991), in their attempt to develop an instrument to measure an individual’s perceptions toward adopting IT innovation, argued that the original construct of OBS introduced by Rogers (1983) was relatively complicated and ambiguous. Therefore, they redefined OBS by two independent constructs: Visibility (OBSV) and Result Demonstrability (OBSR). On the one hand, OBSV refers to how much the potential adopter can view an innovation clearly in the adoption context and that might include television, Internet, newspapers, and other public media channels. On the other hand, OBSR might be viewed in terms of an innovation positive outcomes and communicability to other people in the potential adopter’s social context (Moore and Benbasat, 1991; Agarwal and Prasad, 1997).

Although the DIT has been widely applied in studying the attitudes of IS users towards acceptance, some researchers have argued that it does not provide a clear picture of how these attitudes developed and how they lead to an accept/reject decision by individuals (Chen et al., 2002; Al-Qeisi, 2009). Moreover, Straub (2009) indicates that although the DIT provides a good framework and is still actively used in technology acceptance research both directly and indirectly through its integration into other models, "the breadth and depth of the theory makes it difficult to frame a single study within the structure” (ibid, p.632). Furthermore, he argues that since it is primarily descriptive rather than prescriptive, the DIT does not provide information on how to enable the adoption, focusing instead on why it occurs. Therefore, Straub (2009) recommends introducing some modifications to the model when applying it to the implementation of innovations in specific contexts.

Additionally, previous research has revealed a lack of consistency in technology adoption results when the DIT was used to explain adoption behaviour (Tornatzky and Klein, 1982; Rogers, 2003). Further, Tornatzky et al. (1990) claim that in order to understand an innovation through the DIT model, careful attention to personal,

organisational, technological, and environmental contexts is required. This is necessary because of the complex nature of the diffusion phenomenon as well as its sensitivity to the context where it occurs.

2.3.3 Comparison of Technology Acceptance Models

Despite the fact that those models, so far discussed, have provided acceptable applicability with adequate levels of explanatory power, it has been shown that each one still embodies certain limitations. According to Venkatesh et al. (2003), researchers' choice of the most suitable model usually involves choosing one favoured model from different models without considering the contributions from other models. Therefore, they emphasise the need for careful review and synthesis of these models in an attempt to provide a more unified view of technology acceptance research. Consequently, this section makes a comparison of the TRA, TPB, TAM, and DIT in order to facilitate the process of determining the most appropriate model(s) for this study.

1. Comparison of TRA, TPB, and TAM

Although the TRA, TRB, and TAM are all rooted in social psychology, they are different in many aspects. According to Mathieson (1991) and Sun and Zhang (2006), the three models differ in the degree of their generality. In the TAM, Davis (1989), in an attempt to develop a set of beliefs that can be applied to different systems and populations, assumes that PU and PEOU are the main determinants of a user's behavioural intention, which in turn determines the actual use of technology. In contrast, the TRA and TPB assume that beliefs used to examine users' decisions are cotangent to a specific situation and cannot be applied in other situations. Hence, since the TRA and TPB might not be easily applicable across different situations, pilot studies of relevant outcomes, reference groups, and control variables are essential in order to develop an appropriate measurement instrument.

Although the three models are relatively parsimonious, the TAM shows less complexity with only two determinants of behavioural intention. For example, Taylor and Todd (1995) integrated the TAM with the TPB in a new model known later as the Decomposed Theory of Planned Behaviour (DTPB), which consists of nine determinants of intention. The results revealed that the new model raised the explanatory power of the TAM by just 2% (from 34 to 36%). Therefore, they indicate

that parsimony is important when practical applications are required from the model, whereas it is a less critical issue when the main concern is to gain a full understanding of a certain phenomenon. Nonetheless, Venkatesh et al. (2003) highlight that this parsimony advantage of the TAM can also be seen as a limitation of the model. Although it can predict intention, the TAM does not provide sufficient information to help decision-makers in generating more acceptance of new technology.

On the other hand, unlike the TAM, the TRA and TPB have the advantage of including subjective norms. The TAM does not explicitly include any social factors, which Davis (1989) considered to be integral to the situational beliefs that can be measured by external variables. However, the relationship between subjective norms and behavioural intention in more volitional situations is still unclear and previous research has yielded inconsistent results (Davis 1989; Mathieson, 1991). Therefore, including subjective norms in a model will be at the cost of a large increase in complexity as well as less generalised model for different situations (Liao et al., 1999; Tan and Teo, 2000).

Another difference between the three models is in the measurement of behavioural control. According to Ajzen (1985), behavioural control can be measured through two types of factor; internal control factors (e.g. capabilities and skills needed to use a system), and external control factors (e.g. time, resources, opportunity, co-operation from others). In the TAM, PEOU is used to address internal control factors, whereas the external control factors are not explicitly measured. Davis (1989) argues that these factors can be implicitly addressed by PEOU as a part of situational beliefs. In contrast, since the TRA and TPB use situation-specific beliefs, these models have the ability to capture external control factors easily, along with internal control factors.

Moreover, the TAM has an advantage over the other two models in having a validated instrument. This is an important benefit as it facilitates the easy comparison of results across studies, and the theoretical development of the model. The TRA and TPB, on contrast, require unique operationalisation taking into account the specifics of the situation in which they are used. Therefore, the use of the TRA or TPB would involve developing different instruments to measure all the models' constructs in different situations.

Furthermore, although the three models are similar in that behavioural intention is considered the major antecedent of actual use behaviour, they are different in their related explanatory power. For example, Davis (1989) found that the TAM is better than the TRA in predicting and explaining the variance in behavioural intention in voluntary settings. Likewise, Mathieson (1991) reported that the TAM is better than the TPB in explaining intentions to use technology. Comparable results were also reported by Venkatesh et al. (2003) who found from their comparison of different technology acceptance models, that TAM explained a higher percentage of the variance in attention than the other two models.

2. Comparison of TAM and DIT

Although the two models were originally designed to predict individuals' intentions to accept new innovations, they differ in their origins and applications. The DIT has its roots in sociology, and has been applied in many fields of research (e.g. sociology, communications, marketing, development studies, organisational studies, knowledge management, and complexity studies). In contrast, the TAM was developed, according to Davis et al. (1989), to be applied to any specific domain of human–computer interactions. This confirms its original focus on the examination of determinants of IS acceptance and usage (Zhou, 2008).

Another difference between the two models is their unit of innovation adoption, since whilst the DIT is found suitable for different levels of analysis (e.g. groups, organisations, and individuals), the TAM is believed to work best with the individual level (Rogers, 2003; Venkatesh et al., 2003; Zhou, 2008).

However, despite the fact that the TAM has become well-established as a robust, powerful, and parsimonious model of IT acceptance, some researchers claim that it does not work well in complex and volitional situations where users' personal characteristics, social, and economic variables may be involved in shaping consumers' behaviour (Dabholkar and Bagozzi, 2002; Kaba and Osei-Bryson, 2013). The DIT, on the other hand, is a well-developed model, which is believed to provide other innovation-related information than for that of TAM. The DIT can be applied in the study of technology evaluation, adoption, and implementation, and due to its ability to explain the technology acceptance decisions; it examines factors underlying rates of adoption, and identifies types of adopters (Rogers, 2003; Maditinos et al., 2013).

Moreover, Plouffe et al. (2001), in their comparison of the TAM and DIT, claim that DIT constructs explain more variance in adoption intention than those in the TAM. Yet, in terms of intention to adopt new technology, their results revealed that the constructs of both models are reliable, highly intuitive, and have good explanatory power. However, although the TAM and DIT have different origins and use different determinants to predict customer behaviour in the technology adoption context, it has been recognised that the two models show similarities in some of their constructs; PU in the TAM is close to RADV in the DIT, and the PEOU construct represents the opposite of COMX (Taylor and Todd, 1995; Chen et al., 2002; Oh et al., 2003; Ndubisi and Sinti, 2006; Nor et al., 2010; Giovanis et al., 2012; Moore and Benbasat, 1991).

In summary**,** the above comparisons of the TRA, TPB, TAM, and DIT have revealed the following points:

- Compared to the TRA and TPB, the TAM is considered more applicable to different systems and populations.
- The TAM is the most parsimonious model among the four models.
- The TRA, TPB, and DIT are more advantageous than TAM through its inclusion of personal characteristics, social factors, and subjective norms.
- The TAM and DIT have well-validated instruments.
- The TAM and DIT are believed to explain more of the variance in adoption behaviour than the TRA and TPB.
- The DIT can be applied in different research fields (e.g. sociology, organisational studies).
- The DIT can provide more innovation-related information than other models.
- The TAM and DIT show similarity in some of their constructs.

Given the above discussion, and in line with the present research objectives, it is clear that the related capabilities and advantages of the TAM and DIT make them the most suitable models to use in this research. The literature review is, therefore, directed towards previous IB adoption research based on these two models.

2.4 Review of Previous Research on IB Adoption Factors

An extensive review of IB adoption literature reveals that a large body of empirical research has attempted to understand customer's adoption behaviour. Furthermore, the absence of a well-established theory in the IS domain, including IB, has led researchers to borrow theories and models developed in other areas to underpin their IB investigations. Consequently, several robust and well-validated models have been widely used by researchers in order to predict customers' intentions to adopt IB in different contexts. Among the four well-known technology acceptance models have been discussed in the previous section, the TAM and DIT have emerged as the most appropriate for the current study. Accordingly, a critical review of key IB studies conducted in different research settings using the TAM or/and DIT is now undertaken.

A preliminary review of these studies highlights their main aim to understand what factors influence or hinder customers' adoption of IB services, and the causal relationships among these factors. Moreover, the TAM and DIT IB adoption studies appear to fall into two main categories (see Figure 2-1 on page 18): studies that applied only one model (with or without external factors), and studies that integrated the two models into one model (with or without external factors). The following sections provide details on each of these categories. Appendix 2A on page 305 provides an overview of several studies in each category.

2.4.1 TAM-related Studies

Using an extended version of the TAM, Wang et al. (2003) were among the first scholars to validate the TAM suitability in the IB context. Perceived credibility and individual difference (computer self-efficacy) were added to the original TAM constructs in an attempt to increase the model's explanatory power. The results showed strong support for the proposed model in determining the user's intention to adopt IB in Taiwan. Moreover, the results suggested that PU, PEOU, and perceived credibility significantly influenced behavioural intention to use IB. PEOU was also found to be the most important predictor of Intention to Use. Computer self-efficacy was a significant predictor of PU, PEOU, and credibility. However, since the explanatory power of the extended model was relatively low, the researchers advised that more additional variables should be identified.

Chau and Lai (2003) proposed an extension of the TAM, suggesting four additional influencing variables upon PU and PEOU, these being personalisation, alliance services, task familiarity, and accessibility. The results showed that all these additional variables significantly influenced PU and PEOU, thereby indicating their important role in shaping customers' attitudes towards the adoption of IB in Hong Kong. However, even though the extended TAM model explained more than half (55%) of the variance in attitudes, the authors suggested including a richer set of external variables as predictors of PU and PEOU in order to improve the TAM's explanatory power.

Another extension to TAM was also introduced by Pikkarainen et al. (2004) in their research of IB in Finland. Four external variables were added to the TAM, including perceived enjoyment, information on IB, security and privacy, and the quality of Internet connection. The findings suggested that all variables except the quality of Internet connection had an impact on the acceptance of IB. While PU and information on IB were strong and significant determinants, PEOU, perceived enjoyment, security and privacy were found to have relatively weak relationships with IB acceptance behaviour.

Eriksson et al. (2005) extended the TAM by adding trust in IB as an antecedent to ease of use and PU in their study of IB adoption in Estonia. The findings revealed that PU was the most important determinant of actual use of IB; accordingly, the researchers claimed that PU was the primary reason for Estonian bank customers' use of IB. The indirect influence of PEOU on use through PU was found to be stronger than its direct effect. Finally, the scholars emphasised the need for refining technology acceptance models considering the importance of PU in the adoption of the technology by customers.

After testing an extended TAM model to investigate the factors affecting the adoption of IB in Malaysia, Tan et al. (2010) found that social influence, PU, trust, and PEOU were important determinants of customers' intentions to adopt IB services. The results also showed that perceived financial cost and perceived security risk were not significantly influencing intentions. Their study also confirmed that PU is better than PEOU in predicting and explaining the intention to adopt IB.

Chong et al. (2010) in a study in Vietnam, revealed that PU, trust and government support were important factors influencing consumer usage intentions for IB.

Disagreeing with Davis (1989), their study revealed no significant influence of PEOU on intention to use IB. Since the majority of the respondents were young Vietnamese bank customers (adopters and non-adopters), the researchers believed they could adapt to IB easily and thus, PEOU would not be a barrier to their adoption of IB.

Proposing an extension to the TAM, Fonchamnyo (2013) aimed to identify the factors affecting customers' attitudes towards the adoption of e-banking in Cameroon. The results showed that perceived security, awareness, trust, financial cost, PU, PEOU, and accessibility had significant influence on customers' attitudes and hence, on their adoption of e-banking. Perceived reliability, trust, security, and accessibility also showed significant influence on PU. At the same time, the study provided empirical evidence of the role of demographic characteristics such as age, education, and marital status on customer attitudes, showing that younger, more educated, single customers had more positive attitudes towards e-banking adoption than others.

In their study in Pakistan to investigate the main factors affecting internal (bank employees) and external customers' decisions to adopt IB, Raza and Hanif (2013) used the extended TAM as their theoretical base, including six variables, these being: PU, PEOU, information on IB, security and privacy, perceived risk, and government support. The results showed that all model variables had positive influence on intention to adopt IB. Moreover, while government support was found to have more influence on internal customers' intentions, PU, information on IB, perceived risk, and security and privacy had more influence on external customers' intentions than on those of internal customers.

Attempting to provide a conceptual model explaining and predicting the factors influencing the adoption of IB in Tunisia, Nasri and Zarai (2014) used the TAM with four additional variables, these being customer awareness of IB, social influence, security and privacy, and computer self-efficacy. While the results showed that both PU and PEOU were important determinants of the intention to adopt IB, PU showed more impact on intention than did PEOU. The findings indicated that PEOU, awareness, and social influence were significant determinants of PU; on the other hand, PEOU can be affected more by security and privacy, and self-efficacy.

2.4.2 DIT-related Studies

What follows are examples of studies on IB adoption that used the DIT as their theoretical basis for investigation. More examples are presented in Appendix 2A on page 305.

Gerrard and Cunningham (2003) applied the DIT in a study to explore the perceptions of IB adopters and non-adopters in Singapore. Their theoretical framework included three of five innovation attributes in the DIT namely, RADV, COMX, and COMP. RADV was split into three distinct variables - social desirability, economic benefits, and convenience. Moreover, COMX was also spilt into 'pure' COMX and competence to use personal computers. Confidentiality, accessibility, and innovativeness were also added to their proposed model in an attempt to improve the model power in explaining the adoption behaviour. Findings from the study showed that all the investigated factors affected IB adoption among the adopter and non-adopter respondents. Moreover, the researchers suggested that IB adopters were more financially innovative and more competent in using computers than non-adopters. Adopters were also found to perceive IB services to be more convenient, less complex, and more compatible with their lives, than non-adopters.

By applying an extended DIT, Ndubisi and Sinti (2006) examined the impact of customers' attitudes on IB adoption in Malaysia. They investigated five attitudinal variables (the importance of banking need, COMP, COMX, TRB, and risk) in addition to two IB website features (utilitarian and hedonic orientation) on IB adoption by Malaysian bank consumers. Their results revealed that all the above attitudinal variables except risk and website features were strong predictors of IB adoption behaviour. With regard to website features, the study found that utilitarian rather than hedonistic outcomes were important customer motivators to adopt IB.

Another study using the DIT as a theoretical base, this was conducted by Nor et al. (2010), who aimed to examine the influence of four DIT variables, RADV, COMX, COMP, and TRB on IB acceptance in Malaysia. While the results showed that RADV, COMP, and TRB had a significant effect on attitudes toward using IB, COMX (ease of use) was found not to influence customers to form a positive attitude toward IB. The authors concluded that the significant results of their study suggested that

the positive evaluation of IB would enhance the individuals' intentions to use the technology.

Al-Ajam and Nor (2013a) extended the DIT by including trust to examine the factors affecting the adoption of IB in Yemen. Based on the analysis of data collected from 1,286 respondents, it emerged that RADV, PEOU (COMX), COMP, TRB, and trust were significant determinants of customers' adoption of IB. The results of this study provided support for the proposed extended model, which explained 59% of the variance in behavioural intention to use IB.

2.4.3 Integrated TAM and DIT Studies

While Legris et al. (2003) concluded that the TAM is a useful model to predict technology acceptance behaviour; they stressed the need to integrate it into a broader technology adoption model that could include variables related to both human and social change processes, and to the adoption of the innovation model. They claimed, after their TAM critical review study, that the empirical research using TAM-based models showed inconsistent results, mainly because of the absence of some significant factors from these models.

In general, it can be concluded from the previous section that most studies on the adoption of IB have used variables from one or more of the well-known technology acceptance models and added other external variables in order to enhance the explanatory power of these models. Hernandez and Mazzon (2007) claimed that the process of adding new variables to the TAM or DIT has contributed very little to the explanatory ability of these models; therefore, they suggest integrating them in one model in order to achieve improved explanatory power. Consequently, many researchers believe that integrating the DIT and TAM in one model will provide a better explanation of technology acceptance behaviour than either of the two models could offer individually.

Hernandez and Mazzon (2007) are one such example. They found that an integration of the TAM/DIT with external variables provided a better model with greater explanatory of the adoption of IB in Brazil (60% explanatory). The results showed that the eight variables in the proposed model (relative advantage of control, compatibility with lifestyle, image, subjective norm, self-efficacy, relative advantage of security and privacy, OBSR, and TRB) were significant determinants of intention

to use/continue to use IB. They claim this proposed model to be more comprehensive and offer superior ability to explain the adoption of IB than other individual models employed by previous studies; therefore, they advocate that such model could be useful in other technology acceptance contexts than IB.

Based on a similar TAM/DIT integrated model, Chatchawanwan et al. (2009) investigated the factors influencing Thai customers' intentions to adopt IB. Their model incorporated six independent variables, PU and PEOU from TAM, TRB, RADV, COMX, and COMP from DIT. The results revealed that attitudes, PU, COMP, RADV, and TRB had a positive relationship with intention to adopt IB. In addition, while PU and PEOU were identified as strong predictors of attitudes, they both had positive influence on each other. COMX was found to have a negative effect on Thai customers' intentions to adopt IB. Again, the researchers reported an improvement in the explanatory power of the new proposed model.

Furthermore, Lai et al. (2010) examined an integrated version of the TAM and DIT models in order to assess their capability and predictive power in the context of IB adoption in Hong Kong. Their study aimed to examine the validity of the DIT and TAM in the context of IB acceptance, to compare the performance of the two models in explaining the variance of technology acceptance, and finally to determine the integrated model's ability to extend the theoretical capacity for each of them. The data was collected from 312 part-time MBA and MSc Business students at a major university in Hong Kong. The findings revealed that both the DIT and TAM exhibit good explanatory power of IB acceptance when examined individually. Furthermore, the researchers concluded from comparing the two models that neither one of them is better than the other for technology acceptance research since they both have different strengths and weaknesses. Moreover, the results of the study reported a significant improvement in the integrated model's predictive power, which led them to suggest that using the two models together is better than using either the DIT or the TAM alone.

Muhammad and Rana (2012) conducted a study to identify the barriers to the adoption of IB services among adult students in Saudi Arabia. They used a model with six variables - PU and PEOU from TAM, and COMP and TRB from DIT, and another two external variables, innovativeness and perceived credibility. Based on quantitative data from 150 adult students, the results indicated that the basic TAM

variables (PU and PEOU) along with COMP, innovativeness, and perceived credibility were found to be influential factors explaining the use of IB services. Moreover, TRB was the only variable that did not affect students' behaviour towards the adoption of IB in Saudi Arabia.

Giovanis et al. (2012) also used an integrated TAM and DIT model in Greece, including the TAM constructs (PU and PEOU), COMP from the DIT, and security and privacy risk as an additional variable. While their results revealed that all the four variables had a significant influence on intentions, COMP was the most important factor among them in determining customers' behavioural intentions toward IB adoption. In addition, PU, PEOU, and perceived security and privacy risk were found to mediate the relationships between COMP and behavioural intentions, and PU partially mediated the relationship between PEOU and intentions. The results of their study have confirmed the integrated model's ability to explain the factors influencing customers' intentions to accept IB is better than the traditional technology adoption models. Therefore, the researchers suggested that their proposed model could be utilised to provide a solid theoretical foundation in the IB acceptance case.

2.5 IB Research in the Middle East

According to the United Nations (UN) classification, the Middle East countries are categorised as developing countries. IB adoption in this region was described by Al-Sukkar and Hasan (2005) and Al- Somali et al. (2009) as largely ineffective, and organizations and individuals in this region also characterised by Khalfan et al. (2006) and Kassim and lsmail (2009) to be reluctant to accept self-service technologies compared to their counterparts in developed countries.

Furthermore, in most of the developing countries including those in the Middle East, there are many barriers to use Internet-based applications in general, and to the success of particular applications such as IB (Sathye, 1999; Al-Sukkar and Hasan, 2005).

As mentioned earlier in chapter 1, although there is a growing attention in the literature to study the issues regarding the use and adoption of IB services, however, this attention has mainly focused on developed countries with little interest to developing countries. Therefore, this lack of literature on IB influencing factors in

developing countries, particularly in the Middle East, has led to create an urgent need to understand the nature of such factors in Jordan as an example of a Middle Eastern developing country.

Even though most studies relating to IB services adoption factors in other countries of the Middle East were critically reviewed (for example, Al-Somali et al. (2009) and Muhammad and Rana (2012) in Saudi Arabia, Riffai et al. (2012) in Oman, Nasri and Zarai (2014) in Tunisia, Al-Ajam and Nor (2013a) in Yemen, Rusu and Shen (2011) in United Arab Emirates), the decision was to present only those research studies conducted in the specific research context (Jordan) as an example of IB adoption previous research in the region.

In this regard, several empirical studies have been conducted in the Jordanian context as an example of a Middle Eastern developing country to identify important IB adoption factors from the customer perspective. Appendix 2B on page 317 presents a summary of these studies. For example, Al-Sukkar and Hasan (2005) conducted a pilot study (confirmed later by an extensive study) to examine the acceptance of IB in Jordan by applying a revised TAM; the researchers found support for the basic structure of TAM components which confirmed the broad applicability of the TAM across different cultures. While this pilot study results reported significant correlations of 'online service quality' with PEOU and PU, cultural variables and 'trust in the bank' showed no significant correlation with either PEOU or PU.

Another study in this context was undertaken by AbuShanab and Pearson (2007), aiming to investigate the key determinants of the adoption of IB in Jordan. It attempted to validate the appropriateness of the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003); they proposed that performance expectancy, effort expectancy, social influences, and facilitating conditions are the factors that have a direct impact on behavioural intentions and usage of technology. The findings were based on data collected from 877 customers of three Jordanian banks located in three different cities. It was assumed that no differences existed among the three banks' customers, and the fact that these individuals lived in neighbouring cities. The results showed support for the UTAUT since there was a significant influence of the model's variables on intention.

Moreover, while the relationship between performance expectancy and behavioural intention, and the relationship between effort expectancy and behavioural intention were moderated by gender and age, the relationship between social influence and behavioural intention was moderated by gender and experience. Overall, the results of their study have indicated that the UTAUT provides a reasonable foundation for technology acceptance research in Jordan. However, the researchers suggested that including more factors or using different IT models might be necessary to gain deeper understanding of IB adoption in developing countries, and in Jordan in particular.

In order to understand what factors influence customers' attitudes toward IB services adoption, AL-Majali (2011) used the TRA to posit that Jordanian customers, in general, have high intentions to adopt IB. The study also reported that perceived risk, trust, and awareness of IB adoption were significant factors influencing customers' attitudes towards the adoption process, while family influence and mass media were the determinants of subjective norms. Both attitudes and subjective norms significantly predicted intentions, which in turn influenced the adoption of IB. However, despite the results supporting the generalisability of the TRA in predicting individual behavioural intention to use a technology, the researcher admitted that using university employees as a target sample might restrict the generalisability of the findings to a larger population.

AL-Majali and Mat (2011) investigated factors that could predict IB services adoption through the application of an extended DIT model, by surveying a sample of four Jordanian universities' staff. The findings were that the PU, PEOU, COMP, TRB, trust, and awareness had positive direct impacts on IB adoption.

After examining the attitudes of corporate IB users in Jordan, Alnsour and Al-Hyari (2011) concluded that security and trust should be integrated with PU and PEOU in explaining the acceptance behaviour of corporate customers in the Jordanian context. In their study, perceived security was seen to have a positive impact on both trust and PU, while trust affected PEOU. The traditional notion of the influence of PEOU on PU was also confirmed by this study.

In a study performed by Al-Qeisi and Al-Abdallah (2013), further empirical validation emerged of the UTAUT model's measurements. This study extended the UTAUT model by decomposing the technical sources dimension of the facilitating condition

construct of the UTAUT and replacing it with website design quality. Moreover, findings of this study supported the interrelationships among the main constructs of the model when it was applied to Jordanian context. The website quality showed a significant impact on usage behaviour indirectly through both effort expectancy and performance expectancy. Experience directly affected all model constructs except for performance expectancy, which was influenced indirectly through effort expectancy. Additionally, the researchers suggested that applying the extended UTAUT model in areas other than IB was important in order to examine the trustworthiness of the model in different technology acceptance settings.

Abu-Assi et al. (2014) extended the TAM and DIT models by including security and some demographic variables in order to investigate IB acceptance behaviour among the ABC (Arab Banking Corporation) IB customers. The results indicated that PU, PEOU, COMP, and security were significant predictors of IB adoption. By studying the effects of the factors together and identifying a positive relationship between them and IB adoption, the researchers suggested combining them early in marketing strategies in order to ensure the appropriate synergy among these concepts in order to increase the level of IB adoption among bank customers. Moreover, the study findings revealed that gender, age, education level, and monthly income were important customer demographic variables that were found to have impact on customers' behaviour toward the adoption of IB services offered by the ABC. Apart from the basic statistical techniques used to analyse the data (means and frequencies) and the questionable generalisability of results, Abu-Assi et al. (2014) provided some early empirical evidence of the viability of integrating the TAM and DIT in one model to examine IB adoption in Jordan, a strategy of this current study.

Recently, Rawashdeh et al. (2015) have extended the TAM by adding a new factor entitled 'perceived web privacy' in order to study Jordanian chartered accountants' behavioural intentions toward using IB services. The results of this study provided support for the extended TAM as well as confirming its robustness for predicting the behavioural intentions of the adoption of IB by Jordanian chartered accountants. Intention to adopt IB was significantly and directly influenced by attitudes, PU, and perceived web privacy, and indirectly (through attitudes) by PEOU. While PU and perceived web privacy were found to influence both attitudes and behavioural intention directly, PEOU had a direct influence on attitudes and indirect effect on

intention through attitudes, PU, and perceived web privacy. Based on the above results, the researchers highlighted that if Jordanian accountants hold positive attitudes toward IB adoption, then they are most likely to develop positive intentions to adopt it. These attitudes are mainly a function of the perceived advantages and benefits, the ease of use of the technology, and the individual's perception of privacy and security when conducting IB transactions.

In conclusion, the review of IB literature in the context of Jordan shows that all previous studies, with the exception of that by Abu-Assi et al. (2014) which was a case study of the ABC Bank, were based on an extended version of one of the technology acceptance models. A close review of the study by Abu-Assi et al. (2014) reveals that although the researchers attempted to develop a new integrated theoretical model comprised of the TAM and DIT, the results were based on a particular sample, which raises some concerns about their generalisability. Moreover, it was noted that results were statistically based on mean, frequencies, and percentages, and whilst considered suitable for a specific type of data analysis, these techniques fail to deal with more complicated interrelationships involving many causal processes and models. Hence, there are more appropriate and meaningful data analysis techniques (e.g. EFA, CFA, and SEM) to consider (Field, 2009; Byrne, 2013).

On the other hand, while most of this research extended the original models by adding external factors to enhance their explanatory abilities, they also recommended the inclusion of further factors to build a broader image of IB adoption status in Jordan. Furthermore, the samples in these studies were limited to bank customers from certain geographical areas (cities) or from one bank; no study has considered bank customers from the whole country, as the present study addresses. Additionally, a review of these studies in Appendix 2B reveals that all studies have adopted one data collection method (questionnaire).

Therefore, in order to address the current research gap resulting from the absence of a powerful IB adoption model applied in the Jordanian context, and to shed more light on the adoption process of IB among Jordanian bank customers, this study will use the TAM and DIT models in addition to some external factors derived from previous studies. This is deemed appropriate given that this represents the first nationwide study in the Jordanian context investigating the Internet adoption

process from the bank customer's perspective based on a comprehensive extended model.

Clearly, this study differs from aforementioned studies from three perspectives. Firstly, while some studies partially employed the TAM or DIT in their investigations, this research includes all the original constructs of the TAM and DIT in one model. Secondly, three of the proposed model constructs, namely: government support, accessibility, and perceived financial cost are introduced for the first time in the context of IB in Jordan. Thirdly, this research adopts a mixed-methods approach, collecting data by questionnaire and interviews, in an attempt to provide the clearest possible picture of IB adoption in Jordan.

2.6 Theoretical Framework and Hypotheses

From the review of the IB-related literature, a theoretical framework has been developed which integrates the original TAM and DIT with a number of external factors found to be important to customers' intentions toward the adoption of new technology in general and IB services in particular.

The following sections discuss the development process of the research model in detail.

2.6.1 Rational Behind the Integration

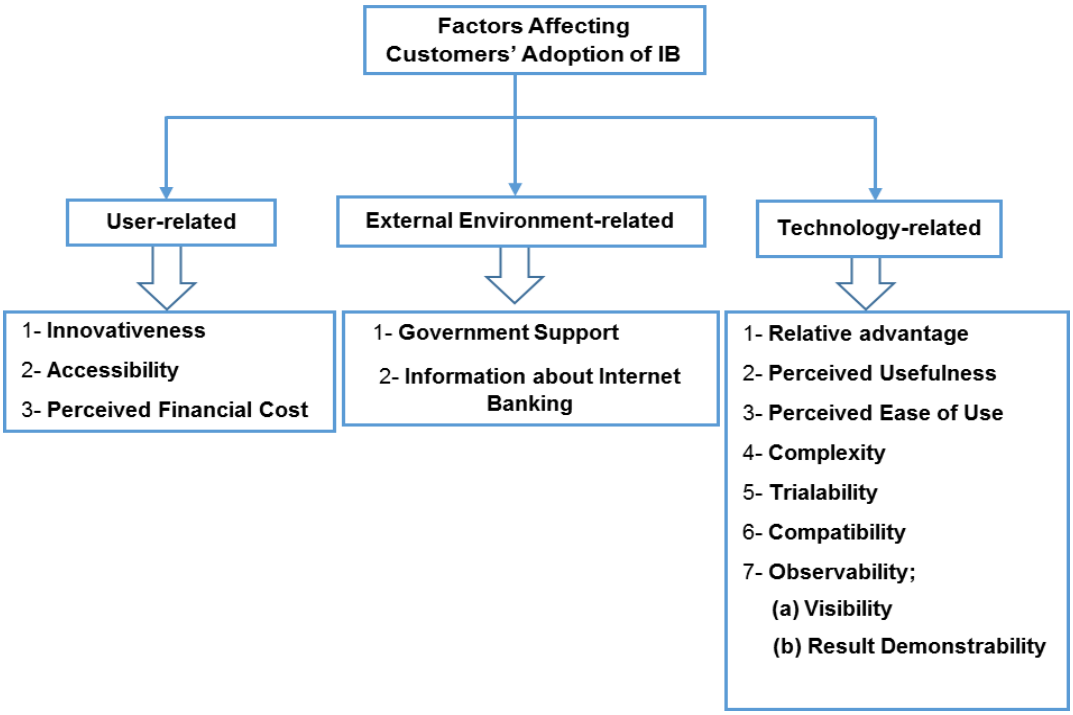
It was noted from reviewing previous IB adoption studies that the TAM and DIT have received wide attention from IS researchers. Specifically, the distinctive features of the two models have led them to be used as a basis in many studies to predict the behavioural intention to adopt new technologies in different research disciplines. As an illustration, the TAM parsimony, robustness, IS emphasis, and capability to examine the adopter's internal beliefs about an innovation are considered to be the model's advantages over other technology acceptance models. On the other hand, the DIT strengths include its comprehensiveness and obvious ability to evaluate the characteristics of an innovation from the user's perspective (Tung et al., 2008; Padachi et al., 2008; Lai et al., 2010; Giovanis et al., 2012).

Moreover, a close examination of the two models reveals that the TAM and DIT are supplemental to one another. Specifically, whilst Roger's DIT represents the importance of the innovation characteristics (external factors) on the adopter's perceptions toward acceptance and use of new technology innovation, the TAM provides a basis for outlining the influence of psychological factors on the user's attitudes and beliefs to adopt the new technology (Agarwal and Prasad, 1998). In addition, while the TAM and DIT have different origins and use different determinants to predict customer behaviour, it was recognised that both models show similarity in some of their constructs; PU in the TAM is close to RADV in the DIT, and the PEOU construct represents the opposite of COMX proposed by Rogers (1983) (Moore and Benbasat, 1991; Taylor and Todd, 1995; Agarwal and Prasad, 1998; Gounaris and Koritos, 2008; Giovanis et al., 2012).

Consequently, several researchers suggest that combining the TAM and DIT in one model could result in a more comprehensive theoretical technology acceptance model, where the strengths of each model enhance the integrated model's power to predict the user's behavioural intention toward technology adoption (Tan and Teo, 2000; Lai et al., 2010). Moreover, as already noted, most technology acceptance models, including the TAM and DIT, have investigated how individual attitudes towards the adoption of an innovation are influenced by various technology characteristics, rather than including variables such as individual personal characteristics. Consequently, many researchers believe that these and other external factors are importance in shaping adoption behaviour (Lu et al., 2005; AbuShanab et al., 2010; Montazemi and Saremi, 2013).

The current research therefore, applies a model that integrates the two technology acceptance models, thus including all the original constructs, plus user-related and external environment-related factors as illustrated in Figure 2-6 on the next page.

Figure 2-6: Factors Affecting IB Adoption



2.6.2 The Theoretical Framework Variables and Hypotheses

The theoretical framework of the study illustrates the behavioural process influencing the decision of a potential user of IB, and that affecting existing users' behaviour.

The variables included are classified in three different categories based on the nature of their influence: technology-related variables, user-related variables, and external environment-related variables (factors) (see Figure 2-6 on page 49). Technology-related variables represent the features and characteristics of the IB technology that have influenced IT acceptance and IB adoption decisions; user-related variables represent different individual characteristics of users that have affected technology adoption decisions over the years in various research settings; and external environment-related variables include infrastructural and legislative concerns as well as the amount of available information about IB. These external variables were found to affect IB adoption in particular nations and are expected to be influential in Jordan based on contextual similarity.

A) Technology-related Variables

1) Relative Advantage (RADV)

According to Rogers (2003), RADV is referred to as the extent to which potential innovation adopters perceive it as being more preferable than the idea; product or service it replaces, and at the same time, shows the benefits associated with the adoption of this new technology. RADV is usually represented in relationships to convenience, less time and effort, and minimum level of stress in using an innovation. In IB settings, customers' perceived RADV may be expressed in terms of flexibility to access their accounts from any place at their convenience (Tan and Teo, 2000; Polatoglu and Ekin, 2001). In other words, IB users tend to evaluate new technology in terms of its advantages over those traditional services already available to them. Specifically, economic benefits, convenience, better personal image, and better performance efficiency may be examples of such advantages (Rogers, 1995).

Empirically, Lichtenstein and Williamson (2006) reported that Australian consumers defined IB advantages in terms of lifestyle, workplace uses, timesaving, less travelling, security, and 24 /7 access. Additionally, they noted that perceptions of the relative advantages of IB services played an important role in determining which banking method was used by Australian banking consumers. They also found that the lack of awareness of the advantages of using IB as a new method of banking was the main reason dissuading non-adopters.

Earlier than this, Taylor and Todd (1995) based on their investigation of students' usage of a Computing Resource Centre (CRC) suggested that IT users can form positive perceptions if they feel that using the technology will bring them more benefits than the existing systems they use.

There is an extensive body of research providing evidence of the significant impact of RADV on users' behavioural intention to adopt IB services as an innovation (Moore and Benbasat, 1991; Kolodinsky et al., 2004; Gounaris and Koritos, 2008; Hsbollah and Idris, 2009; Anuar et al., 2012; Al-Ajam and Nor, 2013a). Furthermore, other scholars have reported that user intention to continue using (post-adoption) IB services was also determined, in the main, by the individual's perception concerning

the benefits to be gained from adopting the new technology (Tan and Teo, 2000; Gerrard and Cunningham, 2003; Al-Ajam and Nor, 2013a).

However, a small number of studies have reported that the relationship between RADV and user behavioural intention to accept an innovation remains ambiguous, claiming an insignificant effect of RADV on potential adopters' intentions. For example, Agarwal and Prasad (I997) explained that the high popularity and visibility of the WWW technology resulted in adopters' curiosity to use it regardless of its potential benefit. Hence, the influence of RADV on behavioural intentions to adopt the WWW among Internet users in the USA was weakened.

2) Perceived Usefulness (PU)

According to Davis (1989, p.320), the PU of an innovation is "the degree to which a person believes that using a particular system would enhance his or her job performance". Many researchers have recognised the importance of PU in the IB adoption context, considering usefulness as the subjective likelihood that a new banking technology can positively enhance user completion of a particular task (Polatoglu and Ekin, 2001; Wang et al., 2003; Pikkarainen et al., 2004; Al-Sukkar and Hasan, 2005; Eriksson et al., 2005; Kesharwani and Bisht, 2012; Fonchamnyo, 2013). The more users feel that using IB services is useful for them in terms of speed, convenience, etc., the more likely they are to adopt the approach (Pikkarainen et al., 2004; Al-Sukkar and Hasan, 2005; Eriksson et al., 2005; Mangin et al., 2011; Fonchamnyo, 2013).

Moreover, it has been empirically shown that customers' personal assessment of benefits gained from using the Internet to conduct banking transactions could influence their acceptance of IB services. In other words, different IB applications such as: balance check, bills payments, money transfer, and obtaining information about withdrawals and deposits are among other services that might be considered useful for improving an individual's performance and saving his/her time (Gerrard and Cunningham, 2003; Alsamydai et al., 2012; Kesharwani and Bisht, 2012).

In the same manner, Tan et al. (2010) argue that IB users must find more advantages to the use of IB services than are associated with traditional banking methods. These advantages may include speed, timesaving, and convenience. They suggest that individuals who are too busy to visit their banks' physical facilities

perceive IB services as useful. The same findings were reported earlier by Pikkarainen et al. (2004) who observed that the benefit of IB services in comparison to other banking channels was the most important predictory factor in IB adoption by bank customers in Finland.

To summarise, technology acceptance researchers seem to commonly agree on the importance of users' perceptions about the utility and benefits of using the Internet to conduct banking transactions, in persuading them to adopt such services.

Based on the similarity of the DIT and TAM and the importance of RADV and PU constructs to customer adoption of IB, PU has been chosen from the two variables for integration within the theoretical model in the study. This leads to the following hypothesis in order to test the influence of PU on behavioural intention:

H 1: *Perceived Usefulness positively influences Behavioural Intention.*

3) Complexity (COMX)

In previous research on innovation adoption, COMX was found to be another important determinant of user intention to adopt. According to Rogers (1995), COMX is described as the perception of a potential user about the degree to which an innovation is difficult to understand or to deal with.

Anuar et al. (2012) also theorised that the degree to which an innovation is felt to be difficult would negatively influence its adoption. Generally, innovations that are easy to understand and simple to perform gain more acceptance from potential users than those that require the user to develop more abilities and skills (Anuar et al., 2012; Ndubisi and Sinti, 2006). Likewise, Hsbollah and Idris (2009) postulate that the chance to adopt an innovation would be declined when users perceived it to be complicated and difficult to deal with.

Moreover, it may also be expected that users' perception of the complexity and difficulty they may experience when using the technology would result in a slow pace of acceptance, which in turn clouds their recognition of its real benefits (Kolodinsky et al., 2004; Anuar et al., 2012). Consequently, Polatoglu and Ekin (2001), and Anuar et al. (2012) acknowledge that Internet-related skills and the user's past Internet and e-mail experiences will decrease the perceived COMX that may inhibit the adoption of IB services by bank customers.

In the context of IB, evidence from recent studies shows that the perceived COMX of IB has a negative influence on customers' intentions to adopt these services (Ndubisi and Sinti, 2006; Chatchawanwan et al., 2009; Mansumitrchai, 2012; Al-Ajam and Nor, 2013a). According to these studies, the likelihood of a potential customer adopting IB services increases as the technology is perceived to be less complex and can be used easily. Hence, an IB service user-friendliness has been shown to play a major role in motivating bank customers to use the service, and thus in influencing their decisions to adopt or reject this channel.

However, several scholars have reported different results, indicating insufficient evidence of COMX as a key determinant of user Intention to adopt new Information Technologies. For example, Agarwal and Prasad (1997) suggested that the popularity of the Internet, the availability of user-friendly features, and the nature of their study sample (MBA students) were the reasons behind the weak influence of COMX on users' intentions to accept the WWW in the USA.

In fact, the role played by a well-educated sample presumed to be familiar with Internet applications has been shown in other contexts, where such personal characteristics were seen to reduce the effect of COMX on the acceptance of new technologies. Specifically, this can be seen in the work of Hsbollah and Idris (2009) in e-learning acceptance in higher education, and in (Nor and Pearson, 2007) and Nor et al. (2010) in IB adoption.

4) Perceived Ease of Use (PEOU)

PEOU has been shown empirically to be a key determinant of innovation adoption that has a positive influence on acceptance of a particular information system. According to Davis (1989, p.320), PEOU refers to "the degree to which a person believes that using a particular system would be free of effort". He argues that the probability of accepting a new IT application increases as its users perceive it as less difficult to execute than another application, and hypothesises that PEOU can be considered as an assessment of the psychological and mental effort exerted by the individual in dealing with the new technology (ibid).

In the same manner, Gounaris and Koritos (2008, p.208) define PEOU as "the extent to which customers' use of IB services is perceived as easy and effortless".

They indicate that effort efficiency resulting from user-friendly technology can enhance the individual's performance, and theorise that IB users' positive attitudes toward the technology's ease of use will make it more useful for them, thus facilitating the process of its adoption.

Similar to PU, many previous research studies have provided evidence of the significant effect of PEOU on customer intention to adopt IB services directly or indirectly through PU (Wang et al., 2003; Pikkarainen et al., 2004; Al-Sukkar and Hasan, 2005; Tat et al., 2008; Yousafzai and Yani-de-Soriano, 2012). Moreover, technology acceptance research has also found a direct influence of PEOU on PU. According to these findings, the more the new technology is perceived to be easy and free of effort, the more the chance it will be considered useful for the user's performance (Wang et al., 2003; Tung et al., 2008; Mangin et al., 2011; Kesharwani and Bisht, 2012).

In the context of IB, it is theorised that effort-free services could lead to better utilisation of the technology and enhance the individual's efficiency through reducing the required banking time and effort. As a result, it has been widely agreed that the ease of using IB services will increase the probability of acceptance by customers (Eriksson et al., 2005; AbuShanab and Pearson, 2007; Fonchamnyo, 2013). In general, research has shown that the likelihood to adopt IB services increases as customers perceive these services to be simple and straightforward to use. However, if the bank customers find IB services difficult and stressful to deal with, they are more likely to prefer conducting their banking transactions using other traditional banking methods (Nor et al., 2011).

Based on the foregoing discussion and the earlier proposed relationship between PEOU and COMX, these two constructs have been represented by PEOU in the theoretical model of the current study as a possible determinant of IB adoption by Jordanian bank customers. Therefore, consistent with the above discussion, it is hypothesised that PEOU has an influence on customer intention to adopt IB both directly and indirectly through PU. In order to test that, the following hypotheses are proposed:

H 2a: *Perceived Ease of Use positively influences Behavioural Intention.*

H 2b: *Perceived Ease of Use positively influences Perceived Usefulness.*

5) Trialability (TRB)

According to Rogers (1983), users' intentions to adopt an innovation are influenced by the extent to which potential adopters are given an opportunity to experiment with the innovation without any obligations. This period of experimentation provides new system users with important pre-use information that may reduce ambiguity and uncertainty related to the new technology. In fact, pre-testing the new technology can create a feeling of comfort in dealing with the system, eliminating unknown fears, and making the use of an innovation more predictable, which in turn will result in more chance of its adoption (Agarwal and Prasad, I997; Tan and Teo, 2000).

Several scholars, in different research contexts, have agreed that TRB is an important determinant of new technology acceptance. For example, Agarwal and Prasad (I997) concluded that potential users who had the opportunity to experiment with the WWW were among early adopters of the new technology in the USA. The researchers attributed that outcome to a better evaluation process that was based on the information collected in the trial experience.

Moreover, Hsbollah and Idris (2009) suggested that pre-testing an e-learning technology before its official implementation was necessary for university lecturers in a Malaysian university. Similarly, Khraim et al. (2011) have highlighted the importance of the TRB construct to users' adoption of mobile banking services in Jordan. They concluded that Jordanian bank customers prefer to try the new mobile banking services prior to committing to its actual usage.

Over the years, several IB adoption researchers have documented the positive influence of trialability on customers' intentions to accept the new services. They argue that the ability to trial IB services helps customers to realise the benefits, minimise any presumed difficulties, and learn how to use the service effectively. Hence, they recommended that banks should provide their customers with the opportunity to try the new technology prior to its formal introduction. They also claimed that this would be translated into easier customer adoption in the future (Tan and Teo, 2000; Ndubisi and Sinti, 2006; Gounaris and Koritos, 2008; Nor et al., 2010; AL-Majali and Mat, 2011; Al-Ajam and Nor, 2013a). In addition, technology acceptance researchers have also reported a positive causal relationship between TRB and PEOU in an IS adoption context, claiming that when potential users have

the opportunity to try out a particular IS, they are likely to perceive it easier to use (Lee et al., 2011; Bhatiasevi and Krairit, 2013).

Conversely, a number of IS researchers disagree with previous findings about TRB's importance to technology adoption decisions. For example, Muhammad and Rana (2012) reported that despite the theoretical importance of TRB in the IB context, their empirical research revealed that TRB had no significant influence on the behavioural intentions of Saudi customers to adopt the service offered by their banks. The researchers claimed that could be a result of specific characteristics of the study sample, comprised of adult students who usually enjoy new technologies and are familiar with various Internet applications. Moreover, Oh et al. (2003) argued that TRB was not found to be a necessary stage in broadband Internet adoption in Korea, since most consumers were already familiar with Internet-related technologies.

In light of the above argument, TRB seems to have potential influence on customers' adoption of IB in Jordan. Hence, the TRB construct has been recruited into the theoretical model in the current study for additional examination and validation.

Consequently, this research presents the following TRB hypotheses to test the influence of this factor on intention and PEOU:

H 3a: *Trialability positively influences Behavioural Intention.*

H 3b: *Trialability positively influences Perceived Ease of Use.*

6) Compatibility (COMP)

The probability that an innovation might be adopted depends on the extent to which the new technology it provides is compatible and consistent with users' beliefs, past experiences, and the ways they are currently doing their work and living their personal lives (Agarwal and Karahanna, 1998; Tan and Teo, 2000). According to Rogers (1995, p.228), COMP reflects "the degree to which the use of an innovation is considered by the individual as consistent with his/her values, socio-cultural beliefs, past and present experiences, and needs". It also refers to the extent to which an innovation matches the individual's value system, past and present ideas, life and job responsibilities (Agarwal and Prasad, I997; Gerrard and Cunningham, 2003; Ndubisi and Sinti, 2006).

Over the years, COMP has been utilised to study user adoption in various new technology settings. For example, Tung et al. (2008) reported that COMP was an important determinant of users' behavioural intention to accept electronic logistics IS in the medical industry; they claim that strong COMP perception leads to widespread adoption. Moreover, Wu et al. (2007), studying the healthcare industry, revealed that COMP had the main positive influence on user intention to use mobile health care systems; they believe that highly compatible technology can result in a high level of adoption among potential users. Likewise, Vijayasarathy (2004) found that COMP was an important predictor of consumers' attitudes towards online shopping in the USA. He defined COMP in this context as the extent to which online shopping is consistent with a potential adopter's personal shopping needs and existing value system.

In the case of broadband Internet diffusion in Korea, Oh et al. (2003) demonstrated COMP to have a direct and important impact on PU and PEOU, and a positive influence on consumers' behavioural intentions to accept broadband Internet as a new technology. They stated that the COMP of broadband Internet with consumers' previous Internet experiences helped them to perceive it as more beneficial and easier to manage, thus prompting a better adoption level. Similarly, other scholars have reported the importance of COMP to innovation adoption in different research settings, for example: Chen et al. (2002) in use of virtual stores, Agarwal and Prasad (I997) in predicting the usage of the WWW, and Khraim et al. (2011) in consumers' adoption of mobile banking.

In the IB context, Tan and Teo (2000) have theorised that IB was considered as a new banking channel consistent with banking services targeting modern customers, who are assumed to have computer-related skills and are familiar with various Internet applications. Therefore, the adoption of IB services may depend on the degree to which these customers perceive Internet usage to be compatible with their lives and previous technology experiences.

Additionally, many researchers believe that the higher the degree of IB services consistency with customers' past experiences, needs, and value systems, the greater the probability of customers' positive attitudes about the technology usefulness, which in turn creates a feeling of familiarity with the technology, leading to a rapid adoption rate (Gounaris and Koritos, 2008; Chatchawanwan et al., 2009;

Lai et al., 2010 ; Nor et al., 2010; Mansumitrchai and Al-Malkawi, 2011; Giovanis et al., 2012). So, if individuals believe that banking via the Internet is irrelevant to their job, personal life or the way they used to manage their financial matters, they will not find IB worthy of adoption (Yu and Lo, 2007; Lai et al., 2010).

Moreover, technology acceptance researchers believe that the individual's beliefs about the COMP of a technology positively influence beliefs about its ease of use (Agarwal and Karahanna, 1998; Oh et al., 2003; Yu and Lo, 2007; Tung et al., 2008; Lai et al., 2010; Giovanis et al., 2012). For example, Agarwal and Karahanna (1998) indicate that an innovation's compatibility with one's existing experiences would imply that the use of this innovation does not require significant change in one's skills, resulting in less effort to make use of the new technology, and thus, greater ease of use.

Based on the above reasoning, COMP appears to be a potentially important factor in the context of Internet adoption; hence, it is included in the current theoretical model for further examination in this research. Accordingly, the following three hypotheses are proposed to test the influence of COMP on behavioural intention, PU, and PEOU:

H 4a: *Compatibility positively influences Behavioural Intention.*

H 4b: *Compatibility positively influences Perceived Usefulness.*

H 4c: *Compatibility positively influences Perceived Ease of Use.*

7) Observability (OBS)

Rogers (1983, p.232) claims that the more easily potential adopters can see the advantages of an innovation, the higher will be the probability of the innovation being accepted. He defines Observability as "the degree to which the results of an innovation are visible and communicable to others". Thus, it appears that it will be easier to diffuse an innovation if its benefits are highly visible to users and other people in a certain social context.

However, Moore and Benbasat (1991), in their attempt to develop an instrument to measure an individual's attitudes toward adopting IT innovation, argue that the original construct of OBS introduced by Rogers (1983) was relatively complicated and ambiguous. Hence, they redefine OBS by two independent constructs: Visibility

(OBSV) and Result Demonstrability (OBSR). On one hand, OBSV refers to the extent to which potential adopters can view an innovation clearly in the adoption context, which might include television, Internet, newspapers, and other public media channels. On the other hand, OBSR might be viewed in terms of an innovation's positive outcomes and advantages in the user's social context (Moore and Benbasat, 1991; Agarwal and Prasad, I997).

Many researchers in different IT settings have studied OBSV and OBSR as predictors of innovation adoption. Agarwal and Prasad (I997), for example, reported that while OBSV construct had a significant influence on current WWW usage intentions, it was found not to be a predictor of intention to continue using the technology. In order to justify this result, they claim that OBSV might play an important role in convincing potential adopters to try the new technology; however, the initial experience that results from this first use will form the individual's attitudes towards the technology, which in turn will influence future usage decisions. However, the same study also revealed that OBSR had a significant influence on users' intentions to continue using the WWW in the future. As an explanation, they suggest that potential adopters would consider OBSR as an instrument to rationalise their decision about initial technology usage in their social context in order to avert any cognitive dissonance that may have emerged. In the same manner, Gounaris and Koritos (2008) hypothesise that the ability of potential IB adopters to demonstrate the benefits of their initial service use among their peers will enhance the person's social image, and consequently result in a greater adoption rate.

Likewise, Venkatesh and Davis (2000) propose that the degree to which an innovation's benefits are seen and shared with others would positively enhance individual attitudes about the benefits of the new technology. Hence, they theorise that OBSR has an important positive impact on user acceptance in the IT context. Additionally, Oh et al. (2003) suggest that if individuals were given the chance to see the benefits of using broadband Internet before adoption, it would be easier for them to use this technology in the future, and to value its advantages. Moreover, according to Mun et al. (2006), the extent to which an individual perceives the outcome of using an innovation to be noticeable and communicable to others, reflects confidence in using the system and achieving desired results. Therefore, they theorise that an information system OBSR would positively influence its PEOU.

As a result, OBS, represented by OBSR and OBSV, can be considered as a possible determinant of IB adoption in Jordan. Therefore, in order to examine the influence of OBS on the behavioural intention to adopt IB, two OBS factors (OBSR and OBSV) have been included in this research theoretical model for further examination. Hence, and based on the above discussion, the following hypotheses are suggested to test the influence of OBSV on intention, and the influence of OBSR on intention and PEOU:

H 5: *Observability-Visibility positively influences Behavioural Intention.*

H 6a: *Observability-Result demonstrability positively influences Behavioural Intention.*

H 6b: *Observability-Result demonstrability positively influences Perceived Ease of Use.*

B) User-related Variables

1) Innovativeness (INV)

In the context of diffusion of innovations research, it has been widely acknowledged that new technology ideas are more valued by curious, innovative individuals who try out new ideas and are active in seeking related information. Moreover, it is commonly believed that innovative individuals are more capable of dealing with high levels of uncertainty than less innovative people, and due to their ability to develop more optimistic feelings toward the use of new technology they are more likely to accept it (Rogers, 1995; Agarwal and Prasad, 1998; Lassar et al., 2005; Lu et al., 2005).

According to Agarwal and Prasad (1998), personal INV in the IT context refers to the degree to which an individual is willing to be involved in using a new IT. They argue that individuals' beliefs about new technology are developed through compiling different related information from various media channels. In comparison with others, highly innovative individuals when exposed to the same media, have the ability to develop more favourable attitudes towards the technology under consideration.

As mentioned earlier, most existing technology acceptance models lean towards examining the relationship between innovation attributes and the user's intention to

adopt it. Hence, researchers utilising these models have usually ignored the importance of personal traits in an individual's adoption behaviour. That said, a number of technology adoption scholars have attempted to integrate some personal qualities into these existing models.

For example, in a study exploring the impact of consumer characteristics on the adoption of IB services in the USA, Lassar et al. (2005) introduced the INV construct to the TAM. They divided the INV concept into two independent constructs, innate (general) consumer INV, and internet domain-specific or actualised INV. The former they consider as a general personality trait that represents the individual's willingness to change and his/her receptiveness to novel experiences, and they describe the latter as the extent to which an individual is willing to adopt a new technology and at what pace. They found that while domain-specific INV was positively related to the adoption of IB, the results revealed an unexpected negative relationship between innate INV and IB.

Similarly, based on the fact that innovative individuals are most likely to develop more encouraging attitudes about the new technology's benefits, Agarwal and Prasad (1998) introduced the concept of personal INV to the original TAM constructs. They theorised that personal INV has a moderating influence on individuals' acceptance of new technologies.

In the domain of IB, research has shown that customers with high INV levels would be among the early adopters of IB services (Gounaris and Koritos, 2008; AbuShanab et al., 2010; Muhammad and Rana, 2012; Montazemi and Saremi, 2013). Although this may be true, the research findings concerning the nature of the INV effect on customers' acceptance of IB services have not been consistent. As an illustration, while Gounaris and Koritos (2008), Gerrard and Cunningham (2003), and Muhammad and Rana (2012) all state that INV has been found to have direct influence on customers' intentions, Montazemi and Saremi (2013) claim that customers' intentions were influenced by INV indirectly through PU and PEOU of the new banking services. Conversely, AbuShanab et al. (2010) reported that INV was not found to be an important factor influencing the intentions of non-users to start using IB services. They point out that the respondents in their study were late in the adoption process, which implied that they had low personal INV.

Nevertheless, the authors support the theorised importance of INV to the early adopters' behaviour.

On the other hand, some research studies have recognised the importance of users' willingness to adapt to new ideas in determining the future users' acceptance behaviour. They argue that if a potential customer has a low level of INV, s/he will be unwilling to adopt an innovation. For example, Sathye (1999), Sohail and Shanmugham (2003), and Padachi et al. (2008) found that customers' reluctance to change -as an opposite of INV- had a significant negative influence on the intentions to adopt IB services in Australia, Malaysia, and Mauritius respectively.

In summary, the issue of personal INV has been found to affect customers' decision to adopt new technologies. As a result, technology acceptance scholars recommend that INV might be useful in terms of identifying the early technology adopters among other customers and targeting them before widely implementing a new technology. Consequently, such customers can become change agents who will promote more diffusion of the target technology (Rogers, 1995; Agarwal and Prasad, 1998; Gerrard and Cunningham, 2003; Lu et al., 2005).

On the other hand, the technology acceptance literature suggests that users' personal INV in the context of IT has a significant positive influence on individual beliefs about the usefulness and the ease of use of a technology (Lewis et al., 2003; Montazemi and Saremi, 2013). Hence, because of its significant influence on technology acceptance behaviour, INV has been incorporated within the model of the present study as a determinant of potential users' Intention to use IB services in Jordan, and as a predictor of both PU and PEOU of these services. The following hypotheses are derived to test the influence of INV on intention, PU, and PEOU:

H7a: *Personal Innovativeness positively influences Behavioural Intention.*

H 7b: *Personal Innovativeness positively influences Perceived Usefulness.*

H 7c: *Personal Innovativeness positively influences Perceived Ease of Use.*

2) Accessibility (ACC)

When using the Internet to conduct personal banking transactions, the availability of appropriate technical resources and proper technology infrastructure seem to have a major influence on IB adoption-related decisions. In other words, personal

computers and convenient Internet connections are the means whereby such applications are diffused, and are, therefore, important components. Hence, it is commonly agreed that the absence of Internet ACC will make IB services less attractive for customers as they would not be able to use these services even if they realised their advantages (Taylor and Todd, 1995; Gerrard and Cunningham, 2003; Jaruwachirathanakul and Fink, 2005).

Most related IT research has shown that user perception of technical resources (e.g. computers and Internet connection), ACC, and technology adoption behaviour are inter-related. For example, Sohail and Shanmugham (2003) define Internet ACC in terms of the ability to gain access to the Internet, and the Internet connection speed; they found that ACC to the Internet had a significant influence on e-banking adoption decisions amongst Malaysian customers.

Moreover, Jaruwachirathanakul and Fink (2005) reported that the lack of Internet ACC due to insufficient Internet infrastructure and facilities, significantly discouraged customers from adopting IB services in Thailand. Again, Durkin (2007) concluded that customers who had better ACC to computers both at home and at work were more likely to use e-banking services offered by banks in the UK.

Poon (2008) also asserts that ACC to both computers and the Internet is a vital requirement for users' adoption of e-banking services, claiming that the extensive use and access to computers and the Internet would result in more e-banking usage in Malaysia. Likewise, several other scholars in different countries have confirmed the relationship between ACC and the adoption of IB services: Padachi et al. (2008) in Mauritius, Al-Somali et al. (2009) in Saudi Arabia, Nor et al. (2011) in Romania; Maditinos et al. (2013) in Greece, and Fonchamnyo (2013) in Cameroon.

Findings from such research also suggest that easy access to the Internet through the availability of personal computers with a quality Internet connection positively affects the PEOU of IB services (Al-Somali et al., 2009). However, whilst this may be shown to be true, the influence of ACC on IB adoption has been found to be less significant in certain environments as outlined by several research studies such as those by Sathye (1999) in Australia, and Pikkarainen et al. (2004) in Finland. The explanation for these findings could be that in developed countries, where these studies were conducted, the Internet and its related applications are long and well established, unlike in many developing countries. As a result, suitable Internet

infrastructure and quality Internet connection necessary to undertake various IB services are readily available and easily accessible for these countries' residents. Consequently, this may have played a major role in the indicated weak influence of ACC on the adoption of IB services.

In view of the importance of technical resources to IB services acceptance in a developing economy such as Jordan, this study infers that ACC is a good candidate for consideration as a potential determinant of IB adoption, and therefore, it has been included in the theoretical model of the current research for further investigation. Hence, the following hypotheses are proposed to test the influence of ACC on intention and PEOU:

H 8a: *Accessibility positively influences Behavioural Intention.*

H 8b: *Accessibility positively influences Perceived Ease of Use.*

3) Perceived Financial Cost (PFC)

The Perceived Financial Cost (PFC) associated with adoption constitutes another key variable at the centre of customer worries about the feasibility of IB. It appears important because cost-related concerns seem to affect an individual's consumption decision-making. Moreover, it is believed that the cost of purchasing a product or service determines the level of financial risk in which the individual will be involved. According to Munene et al. (2002), IB financial risk is perceived by consumers as a result of cost comparisons between IB and other available banking methods.

PFC is found to have significant influence on customer acceptance of IT. Indeed, Sathye (1999) claimed that cost was a major factor resulting in consumers' non-adoption of IB in Singapore and Australia. In addition, Luarn and Lin (2005, p.880) defined PFC in mobile banking adoption as "the extent to which a person believes that using mobile banking will cost money". They refer to individuals' concerns about the financial and knowledge requirements in order to use mobile banking services, revealing that while PFC played an important role in users' acceptance of mobile banking, it stood as a significant barrier for potential users to adopt the service.

From the health industry perspective, Tung et al. (2008) concluded that PFC had a strong negative impact on nurses' behavioural intentions to use an electronic logistics information system in Taiwan. Moreover, Wu and Wang (2005), also

researching in Taiwan note that cost is considered an important predictor of mobile commerce acceptance. Thus, in these situations PFC has a significant negative effect on potential consumers' intentions to use the technology. According to Wu and Wang (2005), cost was perceived in terms of three types of costs associated with mobile commerce transactions: equipment costs, access costs, and transaction fees.

In the context of IB, PFC has been categorised as another significant predictor of the new technology adoption. Studies on IB adoption so far have found a negative influence of PFC on behavioural intention toward adoption (Padachi et al., 2008; Poon, 2008; Nor et al., 2011; Fonchamnyo, 2013). The results highlight the involvement of different financial costs such as computers, Internet connection, and banking transaction fees that influence consumers to use/reject the service. Poon (2008), for example, states that banking fees and charges represent one attribute of e-banking that persuades/dissuades the system's acceptance in Malaysia. He claims that offering the service with reasonable fees and charges is essential if the e-banks want to be successful.

The above notion is also supported by Nor et al. (2011) who postulate that the lower the cost associated with using e-banking, the more likely it is that e-banking services will be adopted by Romanian customers. They also found that the cost savings resulting from using e-banking services, such as less cost of transportation and other expenses, encourage customers to use this new channel more than other banking methods.

Similarly, Fonchamnyo (2013) highlights that reducing the cost of e-banking services is an integral element of any effort to encourage customers to adopt e-banking services in Cameroon. This conclusion was derived from an empirical research exercise indicating that any increase in the cost of the service would be followed by a decrease in favourable customer attitudes toward e-banking services in Cameroon. From the same viewpoint, Mangin et al. (2011) highlighted the importance of IB service costs in the Mauritian banking environment. Among other factors affecting the adoption of IB, the costs of acquiring computers and Internet connection were found to be important predictors of adoption.

Tan et al. (2010) consider the costs associated with IB in two separate categories, those concerning the internet connection charges, and those charged by the bank.

They defined PFC as “the extent to which individuals perceive that using IB is costly” (ibid, p.176), and claim that if the cost of IB is perceived to be reasonable, users will be more likely to accept it. However, the results of their empirical study in Malaysia indicated PFC to have no significance in Malaysian customers’ decisions to adopt IB services. Two potential explanations were offered for these controversial results, one being the relatively youthful respondents to the survey, who were more concerned with the social influences to bank online, and the other hand being the reduction in IB fees over the years. However, Lichtenstein and Williamson (2006) and Poon (2008) report that low financial costs associated with IB do positively enhance customers’ PEOU of the service since there is no requirement to incur additional costs of switching from their old banking channels.

Given the discussion, it can be deduced that PFC is a potential determinant of intention toward IB adoption in Jordan, and therefore, it is deemed worthwhile to investigate this matter further in order to validate its importance. Hence, PFC has been added to the theoretical model. In light of the above discussion, the following hypotheses are suggested to test the influence of PFC on intention and PEOU:

H 9a: Perceived Financial *cost negatively influences Behavioural Intention.*

H 9b: *Perceived Financial cost negatively influences Perceived Ease of Use.*

C) External Environment-related Variables

1) Government Support (GVS)

GVS influences technology acceptance, as highlighted in several e-commerce and IT research studies (Tan and Teo, 2000; Brown et al., 2004; Thatcher et al., 2006; Scupola, 2009). In this research stream, Tornatzky and Klein (1982) report GVS as being a major motivating factor in IB adoption, suggesting it can provide bank customers with the needed promise that IB services are organised and effectively managed. Such support might encourage the development of user trust. The conclusions reached by Tornatzky and Klein (1982) were based on the findings of a meta-analysis of seventy-five research studies related to innovation characteristics and their association with innovation adoption.

Similarly, Tan and Teo (2000) observe that government intervention could play an important role in the diffusion of an innovation in any country, concluding that in the

diffusion of ITs in Singapore, it has been a major contributor. Likewise, Susanto et al. (2013) postulate that GVS is an important mechanism for addressing any infrastructure challenges that may face firms in pursuing IB services in the developing countries. Additionally, they found that GVS significantly influenced customers' initial trust in IB services in Indonesia.

From another perspective, Jaruwachirathanakul and Fink (2005) reported that the lack of government involvement and support in technology implementation was influential in raising users' perceived risk and feelings of insecurity when dealing with IB services, thus decreasing the likelihood of its adoption in Thailand.

Overall, empirical research has shown that in many developing economies, which are still managed to a large degree by the government, there is a role for governments to play in encouraging people to adopt new technologies. For instance, by ensuring the availability of the necessary Internet infrastructures (e.g. Internet connection, wireless networks, and fibre optics), providing the required legal support to regulate e-commerce transactions, and encouraging banks to introduce IB applications by providing incentives such as tax exemptions (Brown et al., 2004; Thatcher et al., 2006; Chong and Ooi, 2008; Scupola, 2009; Chong et al., 2010).

Given that the GVS factor has been found to have a significant relationship with technology adoption in the developing country context, there is a need to include it within any research study aimed at investigating Internet adoption in a Middle-Eastern developing country such as Jordan. Consequently, GVS has been drafted into the theoretical model of the present research for further empirical investigation. Thus, consistent with the above assumption the following hypothesis is proposed to test the influence of GVS on intention:

H 10: *Government Support positively influences Behavioural Intention.*

2) Information about Internet banking (IIB)

Rogers (2003) considered an individual's information about an innovation to be an important determinant of his/her willingness and ability to accept it; he claimed that an individual's final adoption decision goes through the awareness, interest, evaluation and trial stages of the innovation, and is then followed by actual acceptance or rejection.

In the context of IB, the individual's initial information about the new technology is identified as a key concern through which banks can provide necessary knowledge for their customers. This information ranges from promotional activities to instruction on how to use the service properly, and how to deal with the functioning principles underlying the way IB works (Pikkarainen et al., 2004; Ozdemir and Trott, 2009; AL-Majali and Mat, 2011; Anuar et al., 2012).

Several studies have asserted that the amount of information customers possess about IB is an important factor that they consider before adopting the new technology. In this context, Sathye (1999) has documented it as playing a key role in influencing the adoption. He claimed that many Australian bank customers are not adopting IB because of the lack of awareness about such a service being available and its potential benefits. One of Sathye's (1999) recommendations was that bank management could create awareness among their customers by emphasising the advantages of IB over other banking methods.

Again, Sohail and Shanmugham (2003) highlighted the importance of customers' familiarity with IB before any adoption may occur. They reported that Malaysian banks have taken a cue from this, as most of them have created widespread awareness through their informational websites, before introducing their full-scale operational websites. Their study also indicated the importance of more promotional effort on the part of banks to create greater customer awareness of the technology and its benefits.

In Finland, Pikkarainen et al. (2004) found that the availability of information on IB on the bank website was one of the main factors influencing the acceptance of IB. They postulate that the more the amount of information a customer has about IB the more informed s/he becomes about the associated advantages/disadvantages, and the greater the chance of acceptance.

Lichtenstein and Williamson (2006) also noted the value of the bank website in providing information to help customers gain the required knowledge to conduct banking transactions online and thus motivate them to adopt this new banking method. They claim that customers search for information about IB features, advantages and disadvantages, charges, risks, how to register for the service, how to manage it, and how to get support when necessary. Therefore, they recommend that banks do far more to provide their customers with this knowledge in various

ways such as face-to-face, telephone, e-mail, the bank website, and instant messaging. Marketing campaigns and awareness sessions may be beneficial in this respect, although having well-informed personnel available at bank branches and contact centres would obviously be important.

Similarly, Riffai et al. (2012) researching in Oman concluded that increases in awareness of IB services were positively correlated with increases in intention to use these services. They believe that if a bank customer has enough information about IB services, about its benefits, and how to use these services, his/her adoption will be more likely.

The same outcomes are also reported by several IB researchers in different countries; for example, Ozdemir and Trott (2009) in Turkey found that awareness about IB services helped to eliminate customers' security fears, thereby producing greater adoption among Turkish customers; and Al-Somali et al. (2009) found that awareness of IB services and its benefits was among several significant factors influencing attitudes towards IB acceptance in the Saudi commercial banks. Likewise, AL-Majali and Mat (2011), found that customers' intentions to adopt IB services offered by Jordanian banks were positively affected by greater awareness of the services available. Nasri (2011) also claimed that the amount of information consumers have about IB had a positive influence on consumer adoption of IB in Tunisia; and Anuar et al. (2012) demonstrated that the IIB collected by customers' own efforts, and bank promotions, were important influences upon Muslim customer decisions to use IB in Malaysia. Lastly, Fonchamnyo (2013) has found that bank customers in Cameroon display a positive attitude towards e-banking adoption if they were aware of the services and have sufficient information about benefits, advantages, and disadvantages.

As a result, the following hypotheses are suggested to test the influence of IIB on intention, PU, and PEOU:

H 11a: *Information about Internet banking positively influences Behavioural Intention.*

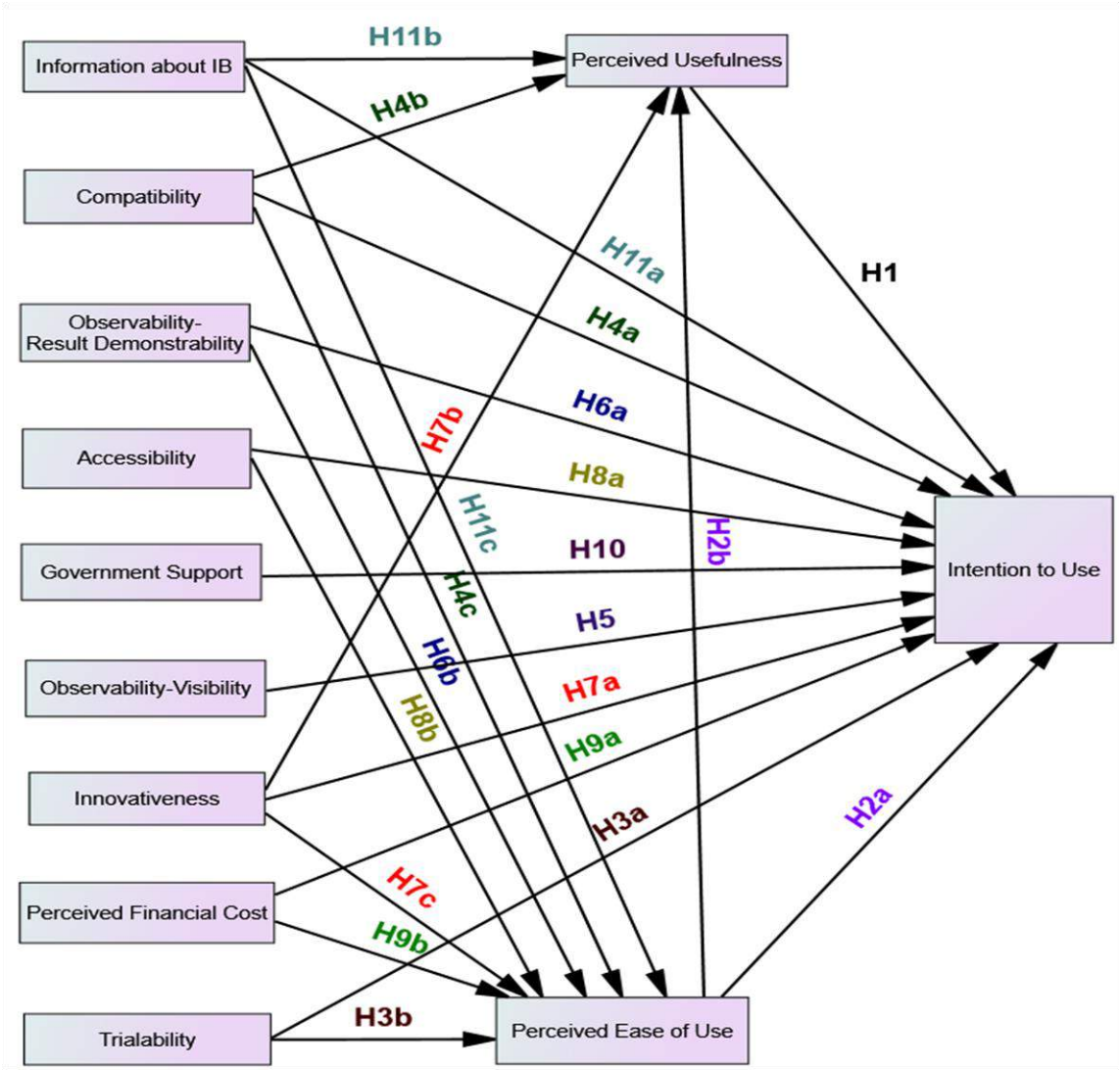
H 11b*: Information about Internet banking positively influences Perceived Usefulness.*

H 11c: *Information about Internet banking positively influences Perceived Ease of Use.*

2.6.3 The Research Model

Having reviewed the related literature and the various rationales given for adding several external factors of the basic TAM and DIT models, the researcher has developed a model to exhibit the potential causal relationships among the independent variables (TAM, DIT, and external factors) and the dependent variable (customer's behavioural intention to use IB). This proposed model (Figure 2-7 below) explains the intention toward the use of IB by postulating eleven direct determinants: PU, PEOU, COMP, TRB, OBSV, OBSR, GVS, PFC, INV, ACC, and IIB. It also suggests eleven indirect influences on behavioural intention; TRB through PEOU, COMP through PU and PEOU, the effect of PEOU through PU, OBSR through PEOU, INV through PU and PEOU, ACC through PEOU, PFC through PEOU, and IIB through both PU and PEOU. Figure 2-7 shows also the presumed relationships among all research variables through the research hypotheses.

Figure 2-7: The Research Model with Hypotheses



2.7 Summary

This chapter has reviewed several empirical studies of IB in order to establish a theoretical framework and to identify the factors that are considered important antecedents of customer adoption of IB in Jordan. Another objective of the above discussion was to develop an IB acceptance model following the TAM and DIT with hypothesised relationships among the model factors. It is theorised that three types of factors (technology-related, user-related, and external environment-related) exist, which have a major influence on the customer's behavioural intention to adopt IB services provided by commercial banks in Jordan.

The model proposes twenty-two hypotheses relating to the variables included. Appendix 2C on page 319 provides a summary of these variables and the hypotheses formulated. The following chapter discusses the methodology and methods employed in the study in order to achieve the research aim and objectives.

Chapter 3: Methodology and Methods

3.1 Introduction

According to Eldabi et al. (2002, p.64), a methodology is “a system of explicit rules and procedures, upon which the research is based and against which claims for knowledge are evaluated”. Creswell (2014) also indicates that the research design for any study is determined largely, by the nature of the problem being explored, the researcher’s resources and personal experience, and the people involved in the study. This chapter discusses the research methodology and methods employed to achieve the research aim and objectives of the current study, which are concerned with identifying the important factors influencing customers’ intentions to adopt IB services in Jordan as an example of a Middle Eastern developing country.

This chapter begins with a discussion regarding the philosophical stance adopted for the study (Section 3.2). The research purpose and approach are discussed in Sections 3.3 and 3.4 respectively before a detailed discussion of the research methods used to obtain quantitative and qualitative data appears in Section 3.5. Statistical tests utilised to analyse the collected data are presented in Section 3.6. Section 3.7 clarifies the ethical considerations taken into account by the researcher in conducting the study, and finally, a brief summary is offered in Section 3.8.

3.2 Research Philosophy

Researchers in social sciences must start their research design by acknowledging the theoretical and philosophical assumptions underpinning their investigations (Saunders et al., 2009).

In this regard, Easterby-Smith et al. (2012) note the value of appreciating the different research philosophies. Firstly, such understanding helps researchers to explore different research designs, thereby opening up opportunities that allow for the achievement of their research objectives. Secondly, researchers are able to identify which philosophical perspectives generate which research designs, and can hence determine which are suitable for their investigation and which are not. Thirdly, the expansion of researchers’ knowledge about research philosophies provides further design options that may be beyond their past research experience.

Research philosophy has been recognised as a set of basic beliefs and perceptions that support the researcher's viewpoint about a certain phenomenon, the truth behind its presence, how to learn more about it, and the theories s/he uses in

defending that perspective. It embodies a researcher's basic beliefs about how s/he sees the world and guides any research project from the point of choosing a suitable research design, though data collection and analysis methods, and to the way in which the findings are reported (Collins and Hussey, 2009).

Saunders et al. (2012) concur with this explanation, claiming research philosophy to reflect a researcher's basic beliefs about the real world, and to refer to the nature of knowledge and the processes by which that knowledge can be developed. They thus suggest that the determination of the philosophical perspective is the first thing a researcher should do when starting a research study as this will govern the selection of the research strategy and research methods. Hallebone and Priest (2009) also observe this point, using the terms 'philosophical framework' and 'research paradigm'.

3.2.1 Ontology and Epistemology

From the review of previous research studies, it is clear that most researchers begin their work by creating assumptions about the nature of the world they plan to study, types of knowledge involved, how knowledge will be developed, and the philosophical stance they will adopt in conducting their research. In this respect, it is found that two basic philosophical pillars, ontology and epistemology, have been central in philosophical debates over many years (Guba and Lincoln, 1994; Easterby-Smith et al., 2012; Saunders et al., 2012). These two philosophical principals provide the bases for the researcher's beliefs and assumptions, and determine what research paradigm will guide the research. Thus, a clear understanding of both principals is an essential step in any research effort (Collins and Hussey, 2009).

Ontology is the philosophical inquiry about the nature of reality and existence. It is about the knowledge of being, what is known about the real world, and how the reality is built (Burrell and Morgan, 1979; Guba and Lincoln, 1994; Crotty, 1998). The primary question addressed in ontology is whether there is a real world existing outside of what is already counted as knowledge. In other words, whether there is an independent reality existing in a tangible and constant structure or whether reality is simply constructed from individuals' perceptions and continuous interactions in a certain social context (Crotty, 1998; Furlong and Marsh, 2010; Bryman and Bell, 2011; Saunders et al., 2012).

Bryman and Bell (2011) and Saunders et al. (2012) highlight two ontological positions, these being objectivism and constructivism. Objectivism, on the one hand, represents the independency of social reality and its existence, which means that the researcher faces the social phenomena as external facts beyond his/her control, i.e., the reality exists autonomously in the form of immutable structure, and thus, everybody shares the same reality as it is the only one in existence. Constructivism, on the other hand, assumes that reality is developed and continuously revised by the individuals and their subjective perceptions in the social context. People usually develop different meanings about reality based on their own experiences; as a result, a complex form of reality exists based on multiple and diversified meanings (Creswell, 2014).

Epistemology as the other philosophical dimension to be considered, deals with what it is possible to know about that reality and how such knowledge can be obtained (Burrell and Morgan, 1979; Furlong and Marsh, 2010). It reflects how people acquire what they know and how they know about the existence of the reality (Crotty, 1998). According to Hallebone and Priest (2009), the researcher's epistemological stance reflects his/her assumptions about how knowledge will be created, synthesised, offered, and used. In the domain of social research, there are two well-known epistemological positions, namely positivist and interpretivist, which are discussed in the following section.

3.2.2 Philosophical Paradigms

Burrell and Morgan (1979) advise researchers to determine which research paradigm is most appropriate for their studies before embarking upon them. Likewise, Guba and Lincoln (1994) emphasise the identification of a suitable research paradigm as an important step in any research as it offers a consistent framework that will guide the researcher during the entire research process.

In this respect, a research paradigm can be defined as the framework that provides guidance on conducting a research study based on how people perceive the reality and their assumptions about the nature of knowledge (Collins and Hussey, 2009).

Similarly, Guba and Lincoln (1994) define the research paradigm as a set of "basic beliefs" that upon which researchers try to understand the nature of reality, to identify the relationships among different variables, and to decide which research

methods to use. They claim that by understanding the most relevant research paradigm, the researcher will be able to identify what problems deserve his/her attention and what are the available research methods.

Many social science researchers have commented on the diverse perspectives in classifying research paradigms (Crotty, 1998; Collins and Hussey, 2009; Furlong and Marsh, 2010), and there is no clear agreement on the best way of categorising the various assumptions about the real world and how we can know more about it. The most common and traditional classification distinguishes two main paradigms - positivist and interpretivist. However, many scholars have used alternative terms to denote the difference between the two paradigms. For example, some studies using the positivist paradigm refer to it as quantitative, scientific, experimentalist, objectivist, and traditionalist. In addition, the interpretivist paradigm could also referred to as phenomenological, qualitative, humanistic, subjectivist, and social constructionism (Collins and Hussey, 2009; Creswell, 2014; Easterby-Smith et al., 2012).

1. Positivist Paradigm

Essentially, the positivist paradigm is based on the objectivity of the real world (Creswell, 2014; Easterby-Smith et al., 2012). Positivist scholars hold the view that reality is objective and independent of the researcher's control. Hence, the researcher should be isolated from the observed phenomenon and neutral towards the people being investigated (Collins and Hussey, 2009; Easterby-Smith et al., 2012). Positivist scholars have suggested that the reality can only be measured by using scientific methods. This means that the researcher should collect data externally without trying to affect or be affected by the natural flow of the real world (Crotty, 1998). To put it differently, while conducting social research, scientists are expected to remain detached by not allowing their personal values and assumptions to bias their objectivity on any research point (Collins and Hussey, 2009).

Furthermore, since positivism is the philosophical stance taken by natural scientists in their real world investigations, when used in social science research, it can be seen by its logical approach to the formation of a study. To illustrate, positivist research in social science follows a systemic problem-solving process, in which hypotheses are developed based on existing theories, related quantitative data is collected and analysed to test the hypotheses, and generalisations are made or new

developments to existing theories occur (Collins and Hussey, 2009; Saunders et al., 2012). When used in the social sciences, this systematic approach is commonly known as deductive reasoning. Hence, it is widely recognised that positivists develop explanatory and predictive models through establishing causal relationships between different social phenomena (Furlong and Marsh, 2010).

Clearly, social research has been influenced by the natural scientists' idea of objectivity. In particular, the positivist scholars' assumptions about reaching a full understanding of a social phenomenon based on observation and experiment have dominated social research practices for a long time (Guba and Lincoln, 1994; Crotty, 1998; Ryan, 2006; Alvesson and Sköldberg, 2009; Furlong and Marsh, 2010). However, many researchers have criticised the positivists' theoretical objectivity over time. Specifically, the main criticism emerges from the obvious differences between social and natural phenomena. Direct observation, for example, would not be a suitable instrument to measure the complexity of a certain social context where most facts are based purely on the individuals' diverse worldviews. In other words, most of the scientific world addressed by positivists is not parallel to what humans really experience in their everyday lives (Crotty, 1998; Saunders et al., 2012).

Furthermore, disagreements with positivists have arisen from the use of quantitative methods to collect research data as critics claim that although these can efficiently cover a wide range of situations with large samples, they remain incapable of understanding different meanings that people assign to their reality. Therefore, positivist methods will not be useful when the intention is to generate theory from real world data (Easterby-Smith et al., 2012). Moreover, Furlong and Marsh (2010) highlight the differences between the social and scientific structures, asserting the impossibility of separating people from their reality in social structure; hence, one's experiences and worldviews in a certain point of time will determine his/her understanding about the world. Given that these worldviews are subject to change over time, the positivist epistemological stance, if applied, will produce misleading results about what is really happening.

2. Interpretivist Paradigm

According to interpretivists, reality in the social world is constructed through individuals' continuous interactions with the world they are trying to understand (Crotty, 1998; Furlong and Marsh, 2010). In other words, reality is far from being

objective and independent because it is, to a large extent, created and given meaning by the social actors (Easterby-Smith et al., 2012; Saunders et al., 2012). Unlike positivists, interpretivist scholars believe that reality is subjective, complex, multiple, and continuously changing (Collins and Hussey, 2009; Creswell, 2014).

Moreover, interpretivist researchers have rejected the assumption that the researcher will be independent of what is being investigated; rather, they argue that the researcher is part of what is happening and plays a crucial role in assigning meaning to the social phenomenon, rather than objectively measuring it. Hence, the role of the researcher is not to measure exact facts, but to deal with diverse meanings and perceptions that people in a certain social context assign to these facts based on their own experiences (Crotty, 1998; Easterby-Smith et al., 2012). According to Saunders et al. (2012), interpretivist researchers should be involved in the social world of their research subjects by adopting a kind of empathetic stance in order to understand these people's views about reality.

Since the interpretivist paradigm assumes the absence of objective reality, believing that meanings are not discovered but rather constructed, the use of quantitative methods to measure those types of meaning could be useless and may produce false data. Instead, interpretivist scholars believe that qualitative data collection methods represent the appropriate means to study social phenomena (Collins and Hussey, 2009; Furlong and Marsh, 2010; Creswell, 2014).

However, although interpretivism became an increasingly important perspective in social research during the twentieth century, it did come under attack from many critics, objecting fundamentally to the reliability of the 'knowledge' produced. As interpretivists' knowledge about the real world is usually based on their research subjects' worldviews, the results will be built on diverse and subjective judgements about the world, which in turn leave no chance to assess the truthfulness of such knowledge (Alvesson and Sköldberg, 2009; Furlong and Marsh, 2010). Furthermore, different researchers worry about the lack of ability to generalise the findings of interpretivist research to broader social contexts. They claim that findings mostly based on different peoples' perspectives in different settings over different time scopes, and with different personal interests, make generalisations deceptive and misleading (Furlong and Marsh, 2010; Easterby-Smith et al., 2012; Creswell, 2014). Table 3-1 on the next page and Table 3-2 on page 80 outline the main

features and differences between the two paradigms. Clearly, these two paradigms present different perspectives and methodological choices, and it is the questions being asked which determine the suitability of the paradigm chosen (Wildemuth, 1993; Ryan, 2006; Creswell, 2014).

Hence, the research questions and objectives of this study are the driving force in the choice of philosophical paradigm. Given that the prime intention of the study is to explore Jordanian customers' behaviour towards IB and to identify the factors that influence their adoption of these services through testing the validity of a proposed model, it is obvious, for many reasons, that a positivist paradigm would be appropriate.

However, it is also recognised that as the aim of the study is also to explore some unobservable aspects of the research problem, relating to customer beliefs and experiences, the traditional positivist approach with its quantitative instrumentation will not be effective, and hence, the researcher believes a modified version of the positivist paradigm would be more suitable. This paradigm is described as post-positivist.

Table 3-1: Differences between Positivist and Interpretivist Paradigms

	Positivist	Interpretivist
The output	Quantitative data	Qualitative data
The sample	Large	small
Approach	Hypotheses and deductions	Theory generation
The researcher	Objective	Subjective
Reliability	High	Low
Validity	Low	High
Generalisability	From sample to the population	From one setting to another

*Adapted from Collis and Hussey (2009) and Easterby-Smith et al. (2012)

Table 3-2: Ontology, Epistemology, Methodology, and Methods for Positivism and Interpretivism

Orientation	Positivist	Interpretivist
Ontology	- Single reality exists and is driven by natural laws.	- Multiple realities are constructed by humans through their actions and interactions.
Epistemology	- The researcher is independent and objective. - Verification of hypotheses through scientific testing.	- The researcher is part of the real world being researched. - Understanding the world from the social actors' perspective. - The researcher's values and beliefs affect his/her investigation.
Methodology	- Hypothetical-deductive; moving from theory to data. - Hypothesis testing. - Establish causal relationships. - Measure quantitative data.	- Inductive, moving from data to theory. - Generating new theories. - Collect qualitative data about why and how things are happening.
Methods	- Questionnaires, Interviews, Observations, Documentation.	- Interviews, Focus groups, Observation, Case study, and Archival interaction.

*Adapted from Guba and Lincoln (1994), Collis and Hussey (2009), Creswell (2014), Easterby-Smith et al. (2012), and Saunders et al (2012).

3. Post- positivist Paradigm

The post-positivist paradigm is frequently adopted in social research as an alternative to the positivist paradigm, as it overcomes the criticisms of the latter approach, and thus makes the alternative more suitable to study social phenomena. According to Creswell (2014), the post-positivist paradigm is a re-think of the positivist main principle about the nature of knowledge, which accepts the difficulty of establishing objectivity when dealing with human behaviours and actions.

Guba and Lincoln (1994) argue that researchers should realise that the real world they hope to reveal is independent from their individual world; it is more complex and greatly exposed to diverse perceptions. According to the post-positivist paradigm, the context of reality directly influences its structure. For example, culture, gender, and personal beliefs are among many factors that may directly affect the construction of reality (Hughes, 1994; Proctor, 1998).

In other words, post-positivist researchers, unlike positivists, appreciate the complicated and inter-related relationships between the individual's behaviour and

attitudes, external environment, and socio-cultural aspects (Crossan, 2003). Therefore, they highlight the need for multiple measures and observations in order to develop clearer ideas about what is really happening through a process called 'Triangulation'. Cohen et al. (2000, p.254) define triangulation as "an attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint". According to Clark and Creswell (2008), triangulation refers to the use of multiple data collection methods (two or more) to collect quantitative and qualitative data in order to understand the phenomenon at hand. They recommend applying this approach when the researcher believes that the data obtained from using a single-method approach is insufficient to solve a particular research problem.

Furthermore, post-positivism differs from both positivism and interpretivism in its ontological, epistemological, and methodological assumptions (Denzin and Lincoln, 1994; Guba and Lincoln, 1994; Clark and Creswell, 2008; Creswell, 2014). On the ontological perspective, post-positivists agree with the reality existence assumption. However, they admit that the complex structure of social reality limits our understanding about it (Denzin and Lincoln, 1994). According to post-positivists, the real world exists out there but it is subject to our bounded rationality; therefore, any effort made to apprehend it falls under probability considerations (Guba and Lincoln, 1994; Clark and Creswell, 2008).

Regarding the epistemological position, post-positivists agree with the notion that being objective is a critical aspect of any quality research effort. Yet, they appreciate the possibility of emerging bias; therefore, they accept the probability of being subjective at any point in time while conducting research. This assumption is well known as 'dualism', which indicates both objectivity and subjectivity in the same study (Denzin and Lincoln, 1994). Therefore, the essential role of the researcher is to measure the reality by traditional methods such as direct observation and other quantitative methods. However, different hidden aspects of the research problem may not be apprehended directly; hence, the researcher aims to develop a better understanding of the social context by being personally involved in collecting qualitative data. Therefore, post-positivists believe that the researcher's personal involvement will be shaped by his/her own background and experiences, thereby leading to subjectivity (Guba and Lincoln, 1994; Creswell, 2014). Nonetheless, post-positivists highlight the importance of the interaction between the researcher and

the research participants, and appreciate that different backgrounds and experiences might shape the way they interact, as well as the impact of contextual and historical factors on the knowledge building processes (Clark and Creswell, 2008).

In methodological terms, post-positivism aims to overcome traditional criticisms by directing the research for more social settings, gathering more contingent qualitative data, restoring the role of grounded theory in the research, and presenting diverse perspectives as a means to understand the meanings people assign to their reality (Denzin and Lincoln, 1994; Guba and Lincoln, 1994). Obviously, achieving all that calls for the incorporation of qualitative methods into an inquiry. This type of methodological approach is usually known as methodological triangulation (Clark and Creswell, 2008; Collins and Hussey, 2009; Creswell, 2014; Saunders et al., 2012).

3.2.3 The Current Study's Philosophical Stance

The ontological belief of this study is that the real world is independent and exists beyond the researcher's reachable knowledge. However, the researcher appreciates the existence of a socially-constructed world, shaped and influenced by individuals' beliefs, experiences, and personal values. Furthermore, the researcher holds the view that our understanding of reality is limited, and that not all aspects of the social phenomenon being researched can be explored. Moreover, this study rejects the positivist assumption about the single reality and underscores the probability of multiple realities. Additionally, it acknowledges that the ability to generalise the findings to the entire research population is limited and subject to some statistical considerations. As a result, a post-positivist ontological position, which considers the existence of reality as well as our bounded capability to know it, is adopted in the present study.

Epistemologically, the study is located in the post-positivist paradigm, it being conducted not only to create knowledge but also to develop a better understanding of Jordanian customers' behaviour towards IB. Moreover, it recognises that the researcher is not independent from those being researched. He has a role in the process, having developed the research model and determined the scope of the study. Hence, his values, experiences, and worldviews may affect the research practices as well as the respondents. Furthermore, the researcher accepts the

probability of “the experimenter’s bias” which may occur unintentionally, but nonetheless, affect the research findings based on the experimenter’s characteristics and actions while conducting the research i.e. appearance, feelings, and interaction with the respondents.

In summary, the study adopts the post-positivist paradigm for three main reasons. The first is its intention to explore the current status of IB adoption in Jordan and to shed more light on the important factors that influence the adoption of these services by Jordanians. That will require the empirical testing of a proposed model using quantitative data, and a semi-structured interview exercise to achieve more in-depth data. The post-positivist philosophical perspective is the most appropriate in such a situation, as it provides the means for achieving the objectives whilst simultaneously allowing new theory to emerge. The second reason is the fact that the researcher is himself, as part of the research process, sharing the same culture as the participants, and unable to remain totally objective. The potential for subjectivity brings with it the possibility of bias. In addition, the third reason is the researcher’s rejection of the notion of ‘one absolute truth’ and belief in multiple realities in respect of the same topic. Therefore, it is believed that the use of mixed-method research in this post-positivist approach will facilitate the understanding of Jordanian customers’ conceptions of IB.

3.3 Research Purpose

According to Saunders et al. (2012), the choice of research strategy, data collection methods and analysis, and the time horizon for conducting research are all greatly influenced by research objectives and questions. In this regard, Yin (2003) proposes that three forms of research exist, these being: exploratory, descriptive, and explanatory.

Exploratory studies aim to discover what is happening and to gather as much information as possible concerning a specific problem. Such studies are particularly useful when the intent is to create more understanding about unclear problems, where the researcher is uncertain about the important characteristics and relationships, and which theories are relevant to a given situation (Zikmund, 2010; Yin, 2003; Saunders et al., 2012). Hence, exploratory research is usually adopted when there is insufficient research evidence in the field and little is known about the research problem. By generating ideas about the problem, the researcher is able to

assess the need for new theory development, or the application of existing theory (Collins and Hussey, 2009).

Usually, exploratory studies are conducted to gain a better understanding of organisational problems and to determine what actions to follow. They do not suggest solutions, but rather provide information about the nature of the problem, which can be used subsequently to provide recommendations for future actions (Sekaran, 2003; Zikmund, 2010). Blumberg et al. (2011) reiterate this, adding that while such studies help the researcher to refine his/her research question by gathering more contextual information on the problem under consideration, they can also be used to support future research efforts, including the correct development of research concepts, organisation of research tasks, operationalising research definitions, and enhancing the quality of research design. In exploratory studies, direct observation, interviews, case studies, focus groups, and literature analysis are used as data collection techniques that can yield both qualitative and quantitative data in order to reveal clear patterns about the problem at hand, and to guide any future research (Sekaran, 2003; Collins and Hussey, 2009; Saunders et al., 2012).

Descriptive studies, on the other hand, usually describe the characteristics of the important variables in a certain phenomenon. They move the investigation beyond the reach of exploratory studies by searching for answers to ‘what, when, who, where’, and ‘how’ questions. The researcher looks for frequency patterns in respect of one or more research variables (Zikmund, 2010; Collins and Hussey, 2009; Blumberg et al., 2011). According to Sekaran (2003), descriptive studies are considered helpful for several reasons. Firstly, they provide meaningful information that can be used to develop a full profile of a particular group. Secondly, they help decision-makers in organising their ways of thinking by obtaining an accurate description of a given topic or problem. Thirdly, they open the door for further inquiries based on what has been discovered from the collected data. Finally, the data from descriptive research could be used to develop an organisational database to enhance the quality of decision-making in a given organisation.

Descriptive research may also deal with past or current relationships, and is beneficial when exploring secondary data as a means of describing particular aspects of a clearly structured problem. Therefore, descriptive studies are

recommended when a problem of interest is well defined and there is no need to examine the cause-effect relationships (Aaker and Day, 1990; Blumberg et al., 2011). Quantitative data collection methods are usually adopted to collect descriptive data, which are then subjected to statistical analysis, with findings being presented in the form of numbers, figures, and diagrams (Collins and Hussey, 2009).

Explanatory studies, as the third option, focus on understanding the different causal relationships that might exist among variables in a given situation or phenomenon. They aim to understand the nature of relationships among all research variables. Unlike exploratory and descriptive studies, explanatory studies try to answer 'why' questions regarding the occurrence of an event or the nature of interaction among research variables (Zikmund, 2010; Collins and Hussey, 2009). Explanatory research goes further than descriptive research by explaining the nature of the relationships among different variables in a given situation. The researcher uses existing theories to develop hypotheses about the expected relationships among the variables and then collects both quantitative and qualitative data in order to test the hypothetical relationships (Sekaran, 2003; Blumberg et al., 2011).

The current study's aim and objectives reveal that both exploratory and explanatory motives are present. Primarily, the study is exploratory since it seeks to elicit the Jordanian customer perspective on a relatively new issue (Internet banking). Given that several previous studies in this context report the absence of any clear theory connecting all the research areas together (Al-Qeisi and Al-Abdallah, 2013; Abu-Assi et al., 2014), and extensive literature review is made in the exploratory part of the study to explore the different technology acceptance models, and IB adoption factors, to identify the potential influences upon the diffusion of IB in Jordan. Semi-structured interviews were proposed and conducted to secure more insight into the important factors and barriers specifically in relation to IB adoption in Jordan.

In the explanatory phase of the study, a theoretical model of the critical factors influencing the adoption of IB in Jordan is developed according to the literature. This proposed integrated model is tested to identify the nature of the relationships among its variables, and to establish cause-effect relationships in order to provide better understanding of the main research problem.

3.4 Research Approach

According to Saunders et al. (2012), there are two types of research approach, deductive and inductive. However, several scholars refer to the two approaches as quantitative and qualitative research approaches (Denzin and Lincoln, 1994; Collins and Hussey, 2009; Creswell, 2014).

The deductive approach is considered as the rational process of reaching an assumption from something that is previously known to be true. Sekaran (2003) emphasises that deductive or hypothetico-deductive research represents one of the primary methods for conducting scientific research. It is the process by which the researcher arrives at a rational conclusion based on a reasonable generalisation of pre-existing facts. Thus, deductive research is referred to as moving from the broad to the narrow (Collins and Hussey, 2009). Within the deductive approach, results are shown in the form of numbers that are presented in figures. In other words, the deductive approach relies mainly on measuring and analysing numerical data in order to find the nature of relationships among various sets of data (Denzin and Lincoln, 1994; Eldabi et al., 2002).

Bryman and Bell (2011) describe the deductive research approach as presenting a universal view about the nature of the relationship between theory and research, through several distinctive steps. The first step is that of theory formulation, in which the researcher attempts to integrate what is known about a certain phenomenon. All known information may come from several sources (personal observations, informal interaction with others, formal interviews with relevant people, literature review, or any other data collection method). A theoretical framework is developed in this stage where all important factors are brought together to identify their relative importance to the research problem and to determine the extent to which they explain its occurrence, and what can be done to solve it. The next step is to generate hypotheses based on the pre-assumed relationships among the variables in the theoretical framework. In this step, the concepts in the generated hypotheses are translated into operational terms that can be measured through empirical investigation. In the third step, further empirical data is collected in order to test the generated hypotheses. The researcher should decide at this stage which research methodology to follow, what research design is most suitable, and which data collection method(s) is/are most appropriate. Findings are obtained in the next step

based on the analysis of quantitative and qualitative data gathered. Then in the fifth step, the findings are used to decide whether to accept or reject the hypotheses. In the final step the researcher can make recommendations based the findings with respect to the theory under consideration (Sekaran, 2003; Bryman and Bell, 2011; Saunders et al., 2012).

Saunders et al. (2012) assert that the deductive research approach is considered important for three reasons; firstly, it involves the analysis of causal relationships among the research variables; secondly, through operationalising the research concepts, it offers better understanding of the research problems by reducing them into simple elements; and finally, if its findings are based on a sufficient and representative sample, they are generalizable to the whole research population.

Inductive research, in contrast, is the logical process of establishing a general assumption based on observable facts in which the researcher collects and analyses data in order to develop a theory (Sekaran, 2003; Zikmund, 2010). Collins and Hussey (2009) indicate that inductive reasoning enables the researcher to provide explanations about a certain phenomenon by developing a general proposition (theory) based on observable facts; therefore, this approach is considered as proceeding from what is particular to what is general.

Inductive researchers argue that despite the ability of deductive reasoning to identify a network of associations and establish causal relationships among research variables, the researcher remains unable to understand the interpretations that research participants give to their social world. Hence, inductive reasoning helps to uncover more aspects of the social phenomenon by being close to people who are affected by it. The collected data in this regard might include participants' emotional experiences about what is really happening in a given situation as well as their personal interpretation about the causes of a particular problem and what kind of solutions they propose (Saunders et al., 2012).

In other words, the emphasis in the inductive research is on defining an event in narratives, taking into consideration the importance of describing the context and considering the view of those who influenced by a phenomenon when trying to assign meaning to it. Therefore, the inductive approach is best used to acquire in-depth information about a problem, and to reveal underlying motives, feelings, values, and perceptions (Yin, 2003; Hair et al., 2004).

Creswell (2014) argues that the nature of the research topic determines the most appropriate research approach. A deductive approach is suitable where the topic is already well researched and the researcher can develop a theoretical framework and testable hypotheses based on previous research work. In contrast, if the research topic is relatively new and there is no clear theory governing it, it is more appropriate to follow inductive reasoning in order to develop more understanding of the topic and arrive at new theory by collecting and analysing more contextual data. That said, Creswell (2014) highlights the possibility of employing both approaches in different stages of the same study.

Given the primary aim of this study already mentioned, a deductive reasoning involving the testing of several hypothesised relationships among the proposed model variables is deemed appropriate approach. However, since the real world is not simple, and there is a limited amount of information about Jordanian customers' IB behaviour and no commonly accepted theoretical framework in this context, inductive reasoning is also used as this will facilitate greater understanding of the meanings that Jordanian customers attach to IB, thereby fostering theory development. These two approaches are used in different stages. Deduction is used in the first stage to develop the theoretical model based on the related literature. Thereafter, quantitative data are collected and statistically analysed in order to test the hypothesised associations among the model variables. Induction is used in the subsequent stage, when qualitative data are collected and classified in order to arrive at general inferences and patterns regarding the adoption of IB adoption in Jordan.

3.5 Research Methods

3.5.1 Secondary Data

Secondary data refers to data that have been collected by other people for other purposes, but which are readily available for any other researcher to use (Sekaran, 2003; Blumberg et al., 2011; Easterby-Smith et al., 2012). Both quantitative and qualitative data are found in secondary sources. However, Saunders et al. (2012) reported that no commonly agreed classification of secondary data exists among business research scholars. Therefore, in this study, a classification proposed by Blumberg et al. (2011) is adopted.

According to Blumberg et al. (2011), secondary data can be classified based on two main dimensions. The first is the data source, and whether this be inside (internal) or outside (external) the organisation. The second is the data formats, and whether this be written or electronic. Based on these dimensions, it is argued that secondary data can fall in one of the following four categories:

1- ***Internal-Written*** secondary data, such as organisational memos, contracts, and invoices.
2- ***External-Written*** secondary data, such as government reports, books, periodicals, yearbooks, newspapers and other media publications, and professional and trade associations' reports.
3- ***Internal-Electronic*** secondary data, such as management information systems and the firm's accounting records.
4- ***External-Electronic*** secondary data, such as bibliographic databases, government websites and electronic reports, websites of professional and trade associations, media websites, industry websites, and previous research databases.

Secondary data can provide useful contextual information about the research topic, which can later be translated into a better understanding of the research problem. Additionally, if obtained from credible sources, secondary data can offer high quality information with considerable time and money savings (Sekaran, 2003; Blumberg et al., 2011).

The collection of secondary data for the current study involved relevant information from a number of sources. Several electronic statistical yearbooks published by Central Bank of Jordan (CBJ), and other information provided by the CBJ website were consulted. Additionally, government and professional institutions' websites related to the banking industry in Jordan were reviewed on a regular basis during the different phases of the study to ensure that the most current information was sourced. These electronic sources include the websites of the Department of Statistics, Ministry of Communication and Information Technology, and Association of Banks in Jordan. Other sources of secondary data included public Internet websites such as Internet World Statistics and various Jordanian media organisations.

Apart from external electronic sources, secondary data were also obtained by continuously exploring the websites of twenty-one (thirteen Jordanian and eight foreign) operating commercial banks in Jordan. Over a period of three years (April 2013 to April 2016), these banks' websites were regularly reviewed for the following purposes:

1- To detect which banks continued to provide IB services and which banks do not.

2- To observe the development of IB services offered by these banks in terms of breadth and quality.

3- To collect IB-related information (if applicable) e.g. IB marketing efforts by banks, information concerning IB on the bank websites, and any other useful information.

3.5.2 Primary Data

Collins and Hussey (2009) emphasise that the chosen research methodology is a reflection of several important questions that need to be asked in order to meet objectives, for example, what type of data to collect? where to find it? what is the right time to collect it? what are the appropriate methods to collect it? and what techniques to use in the analysis?

Ryan (2006) claims that post-positivist researchers usually go beyond the traditional thinking in problem solving. She asserts that the post-positivist position represents a rational modification of the positivist paradigm in that it strives to understand the complexity of the real world whilst recognising the insufficiency of the available methods for the researcher wanting to capture a clear image of the reality formed largely by other people's dynamic behaviours and interactions. This appreciation is gained by the use of more than one data collection technique so that the unanswered questions that often remain after positivist research, can be addressed.

As already mentioned, the use of a combination of mixed-methods approach, in which both quantitative and qualitative data are gathered, is popular among business researchers, since studies can benefit from the strengths of each type of data collection technique, which counteract the weaknesses of the others (Patton, 2002; Creswell, 2014; Saunders et al., 2012). Furthermore and again as already

briefly indicated earlier in the chapter, mixed-method research allows for methodological triangulation such that the phenomenon being studied can be approached from different perspectives. Specifically, methodological triangulation involves using two or more data collection methods, mostly quantitative and qualitative, to study the same phenomenon. Clark and Creswell (2008, p.157) define it as "a method of obtaining complementary findings that strengthen research results and contribute to theory and knowledge development". Indeed, as noted by Easterby-Smith et al. (2012) the different perspectives introduced through triangulation allows for a full exploration of the issue at hand.

In terms of the tools used in mixed-method studies, Bryman (2006) has reported that of 232 mixed-method social science journal articles, most studies depended on semi-structured interviews, and questionnaires to obtain qualitative and quantitative data respectively. Certainly, when eliciting customer attitudes, it is recommended by Saunders et al. (2012) that researchers use different types of data collection methods. Specifically, questionnaires can be used to measure attitudes, and in-depth interviews can be used to acquire a better understanding of these attitudes.

Consequently, given all these factors, and consistent with the researcher's post-positivist stance, this study adopted a mixed-methods approach, gathering both quantitative and qualitative data, to obtain the attitudes of Jordanians towards IB services. Further, as the research problem primarily requires quantitative data, sequential triangulation is used. According to Clark and Creswell (2008) and Bryman and Bell (2011), sequential triangulation implies that the results of one data collection method represent the starting point for the next method. Thus, the present investigation sought first to collect quantitative data via a survey questionnaire, and then to gather qualitative data through semi-structured interviews with a number of the survey participants to complement the findings from the questionnaire. This strategy is justified on the grounds that whilst the questionnaire can deliver quantitative descriptions about IB services in Jordan, customers' demographics, attitudes, and perceptions toward these services, it cannot offer in-depth contextual information about the adoption process in terms of Jordanian customers' motives, feelings, and values.

3.5.3 Survey Questionnaire

Surveys are commonly used because they allow researchers to collect a considerable amount of data by investigating a large number of subjects in a highly efficient manner, thereby facilitating the generalisability of research findings to the whole research population (Sekaran, 2003; Blumberg et al., 2011; Saunders et al., 2012). According to Sekaran (2003), personally administered questionnaires offer many advantages over other types of survey questionnaire, the main one being that they require less time to collect large volumes of data from research participants. Another advantage is the presence of the researcher as this enables him/her to provide any clarification required by respondents and to motivate them to answer all the questions.

In this study, quantitative data from at least 400 respondents were the target on the basis that this number would provide the researcher with sufficient data to be able to generalise his research findings to the whole research population (see sample size calculations in page 105). The limited financial and time resources available to the researcher meant that quantitative data from this number of participants could be collected most efficiently via self-administrated questionnaires. As a result, survey questionnaires were chosen by the researcher to collect the needed quantitative data in the first phase of the current study.

3.5.3.1 Questionnaire Design

According to Collins and Hussey (2009), researchers aiming to gather opinions and feelings from a large sample, and at relatively low cost, tend to develop questionnaires involving lists of carefully structured and pre-tested questions. In respect of this study's questionnaire, the researcher found from reviewing IB literature that the use of previously validated measurement scales was a common research practice for many scholars in the field (e.g. Pikkarainen et al. (2004); Shih and Fang (2004); Vijayasarathy (2004); Ndubisi and Sinti (2006); Nor et al. (2008); Kesharwani and Bisht (2012); and Al-Qeisi and Al-Abdallah (2013). Moreover, Bryman and Bell (2011) highlight that by employing other researchers' questions; a researcher is usually able to develop a more credible research instrument that will provide more valid and reliable research results.

Consequently, all measurement scales used in this study's questionnaire, were based on a combination of previously validated instruments from several studies in technology acceptance and IB adoption fields. Appendix 3E on page 337 shows various sources from which the current research instrument has been developed as well as details of different types of scales used in the final version of the questionnaire.

Sekaran (2003) observes that question wording and the overall organisation of a questionnaire are the most important principles in any questionnaire design process. Therefore, some design issues were taken into consideration in order to arrive at the final layout of the questionnaire, shown in Appendix 3A on page 321.

At an early stage of the design process, the researcher developed a preliminary pool of measurement items for all constructs in the research model, based on information derived from the literature review. In the next stage, an initial screening of these items was made, bearing in mind the Jordanian national culture. The aim was twofold; firstly, to ensure that the chosen questions were appropriate for the Jordanian culture, and secondly, to confirm that these questions fulfilled some general criteria as recommended by various scholars (Sekaran, 2003; Saunders et al., 2009; Bryman and Bell, 2011; Easterby-Smith et al., 2012). These criteria require that questions to be:

1- Directly related to the research questions, to ensure these overall questions can be answered by the obtained data.
2- Clear and do not include any ambiguous, complex, unfamiliar, or highly technical terms, to ensure effective and straightforward measurement of the answers.
3- Simple and present no more than one idea.
4- Specific, and do not refer to generalisations.
5- Reasonably short, to avoid questions being skipped or randomly answered by respondents.

In the final stage of the questionnaire development process, appropriate items for each research construct were incorporated in an initial questionnaire copy, which was then reviewed by six experts (four academics from LJMU in the UK and Yarmouk University in Jordan, and two bank managers in Jordan) in order to ensure

the clarity of questionnaire statements and the comprehension of measurement scales.

Based on their feedback, some modifications were made to the questionnaire questions and instructions. For example, one expert suggested that the demographic question related to the respondent's marital status was irrelevant to the research objectives and should be dropped; another recommended expanding the cover letter at the beginning of the questionnaire to include more information about research objectives and the expected time needed to complete the questionnaire. Thereafter, the researcher focused on achieving an attractive questionnaire layout to encourage respondents to answer the questions accurately. At this stage, the main intention was to produce a clear sequence of the questions and limit the questionnaire to five pages to keep it manageable (Arabic version, Appendix 3B on page 326). Saunders et al. (2012) note that, on average, questionnaires of 4-8 pages are more acceptable to respondents than shorter or longer questionnaires.

A covering letter providing information about different aspects of the study was then written in order to increase the probability of respondents' co-operation. This letter featured as the first page of the questionnaire and was printed on LJMU official logo paper to communicate integrity and credibility. The letter informed participants of the purpose of the research, importance of their participation, expected time for completion, confirmation of anonymity and confidentiality, voluntariness of participation, their right to withdraw at any time, how collected data would be treated, and finally the researcher's contact information in case of any further inquiries.

3.5.3.2 Questionnaire Structure

The questionnaire was structured into three different parts as can be seen in Appendix 3E on page 337:

Part One: Information about IB usage status.
This part consists of only one question (Q1), aimed to establish whether the respondent is an IB user.

Part Two: Demographic characteristics.

The required data in this part were collected through five questions about gender, age, education, current occupation, and monthly income. This data was essential in order to facilitate the process of profiling the research sample as well as to perform statistical comparisons among research respondents later. This part (Questions 2-6) used different types of multiple-choice question.

Part Three: Attitudes and intentions towards IB.

This part aimed to measure respondent's attitudes towards the research model variables. All questions were based on a five-point Likert scale ranging from "strongly disagree = 1" to "strongly agree = 5".

In order to decrease any potential confusion, each construct's items were grouped together as follow:

1- **Perceived Usefulness (PU)**. This group included six items to determine the level of respondents' agreement/disagreement with statements regarding the value of IB services for them in terms of productivity, speed, convenience, etc. These items were adopted from Al-Sukkar and Hasan (2005), and Davis (1989).

2- **Perceived Ease of Use (PEOU**). Six individual items were used to measure the extent to which respondents believed that IB was a user-friendly and could be used easily without effort. The items were also adopted from Al-Sukkar and Hasan (2005), and Davis (1989).

3- **Trialability (TRB)**. Four items were used to reveal the importance to respondents of their being able to test the IB services, and to establish their beliefs about the bank role in this process. These items were adopted from (Nor and Pearson, 2007).

4- **Compatibility (COMP)**. This group of three items was included in order to determine the degree to which respondents considered IB compatible and consistent with their values and personal beliefs. These items were adopted from Moore and Benbasat (1991) and Tan and Teo (2000).

5- **Perceived Financial Cost (PFC)**. These three items were incorporated to discover the degree to which the cost associated with using IB has influenced respondents' behaviour. They were adopted from Poon (2008).

6- **Observability-Visibility (OBSV)**. Two items were adopted from Moore and Benbasat (1991) to learn whether IB applications were clearly noticeable in the different aspects of respondents' lives (i.e. via television, the Internet, newspapers, word of mouth, and other public media channels).

7- **Observability-Result demonstrability (OBSR)**. The thee items related to this construct aimed to detect respondents' beliefs about their ability to communicate IB positive outcomes and advantages to other people in their social context. The same items were originally used by Moore and Benbasat (1991).

8- **Innovativeness (INV)**. These three items were adopted from Agarwal and Prasad (1998) with the intention of measuring respondents' receptivity to change and their willingness to adopt new technologies.

9- **Government Support (GVS)**. Four items attempted to measure respondents' attitudes towards the role of the Jordanian government in supporting IB applications development in the country. These items were adopted from Tan and Teo (2000) and Jaruwachirathanakul and Fink (2005).

10- **Information about IB (IIB)**. These three items were initially included to determine the extent to which respondents have enough information about IB as well as to establish their attitudes towards the role of the banks in creating appropriate awareness of these services in Jordan. The three items were formerly proposed by Pikkarainen et al. (2004).

11- **Accessibility (ACC)**. Four items used previously by Nor et al. (2011) were included to measure the availability of specific resources required by individuals to be able to conduct IB transactions (personal computers and Internet connection).

12- **Intention to Use (IU)**. In the last group of items, four essential questions were incorporated in the main instrument in order to determine the extent to which respondents believe that they will use IB services in the near future as well as

their intentions toward IB as their main banking tool. These items were adopted from AbuShanab et al. (2010) and Aderonke et al. (2010).

3.5.3.3 Questionnaire Translation

Although many citizens throughout Jordan can speak, or at least understand English from school formal education, English is not the official spoken language in the country. Hence, it was necessary to translate the questionnaire from its English version into Arabic, which is the widespread spoken language by the majority of Jordanians. The questionnaire was systematically translated according to the back translation procedures proposed by Brislin (1970). According to Maneesriwongul and Dixon (2004), the back translation method is highly recommended by researchers in social studies, since it has the key benefit of enabling them to compare the original source language version of the questionnaire with the version, which was back translated into the source language after the forwarded translation. By doing that, the researcher ensures the validity of the back-translation process by confirming that the instrument is almost the same in the two languages.

Hence, the English version of the instrument was translated first into Arabic by two independent bilinguals (a researcher in linguistics at LJMU-UK and a PhD holder in English language at Yarmouk University- Jordan). The two resulting Arabic versions were then incorporated in one version. This Arabic version was then sent to a third Jordanian professional translator in order to translate it back into English. A comparison was then made by two academic bilinguals of the back-translated English version and the original English version of the questionnaire to assess the validity of the translation process by ensuring that the two English versions were identical.

3.5.3.4 Questionnaire Pilot Test

Pilot testing is important in ensuring the validity and reliability of a research instrument, and hence, that the instrument will work well in full scale data collection, and that respondents will not face any difficulties in answering the questions it poses (Bryman and Bell, 2011; Saunders et al., 2012). Saunders et al. (2012) indicate that testing the questionnaire is an essential step to be performed before proceeding to the formal data collection phase, as such piloting enables the researcher to detect any weaknesses and deficiencies in the proposed content and procedures, and

presents the opportunity for amendments and adjustments to be made to preclude problems emerging in the future.

Bryman and Bell (2011) emphasise that pre-testing a questionnaire before administering it to the main study sample can identify specific questions that might be skipped by respondents through lack of understanding of either the wording of the questions, or the questionnaire instructions.

A) Data Collection for the Pilot Test

The final Arabic version (Appendix 3B on page 326) of the questionnaire was distributed to a convenience sample of Jordanian bank customers. Although researchers have not agreed on the sample size for a pilot study, some ideas have been suggested. For example, Isaac and Michael (1995), and Hill (1998) suggested a sample size of 10 to 30 as suitable for pilots, whilst Van-Belle (2002) recommended no fewer than 12 subjects. On the other hand, Johanson and Brooks (2010) argue that the nature of the pilot study sample (rather than its size) has the largest impact on accuracy of pilot study results. For example, a large unrepresentative pilot sample will certainly yield inaccurate results. Nevertheless, they concluded that larger samples are always better as the accuracy of estimated pilot results increases as sample size increases, everything else being equal.

At this stage, the questionnaires were distributed to a sample of forty bank customers randomly selected from different places in Irbid (a city in the northern part of Jordan). The respondents were asked first to complete the questionnaire, and then to comment on issues such as wording, length, and the clarity of questions and instructions. This initial pilot test revealed that, on average, the questionnaire took about 8-12 minutes to be fully answered. Furthermore, there were no significant complaints about the clarity of the questionnaire language and instructions. However, some respondents did offer suggestions to improve the questionnaire for further data collection stages, and based on these suggestions, minor refinements were made for the fourth item of GVS, the third item of INV, and the fourth item of PEOU measurement scales.

B) Validity and Reliability of the Piloted Questionnaire

According to Saunders et al. (2012), a valid questionnaire is one that enables the researcher to collect the best possible accurate data. Reliability, on the other hand means the consistency of the collected data in different research settings. Foddy (1994) defines a valid and reliable questionnaire as one whose questions and answers make sense. Specifically, he stresses that "the question must be understood by the respondent in the way intended by the researcher and the answer given by the respondent must be understood by the researcher in the way intended by the respondent" (ibid, p.17).

1) Validity

The concept of validity in general refers to how the findings of the research reflect the real world conditions. In other words, whether the data collection method is able to measure accurately what it is supposed to measure. To determine the validity of a data collection method, various types of validity tests are available, the most type being content validity. According to Sekaran (2003) and Saunders et al. (2012), content validity refers to the degree of adequacy with which the research instrument covers all aspects of the intended research concepts. In simpler terms, it relates to the extent to which all sides of a given research construct are represented by questions in the research instrument.

The content validity of a research questionnaire can be enhanced by several actions: firstly, by carefully outlining the research topic through a comprehensive review of the related literature; secondly, by using a panel of experienced individuals who are able to judge the adequacy of the instrument's questions in measuring the intended concept; and finally, by allowing comments and suggestions to be made by others through pre-testing the instrument (Saunders et al., 2012).

In order to ensure the validity, and specifically content validity of the questionnaire, the following steps were taken:

1- The development of the research instrument was based on a continuous review of prior studies on IB adoption. Therefore, the items used in the questionnaire were taken from previous studies and modified to fit the specific current research context and environment. More specifically, the

questionnaire was mainly developed using items from previously validated questionnaires.

2- The questionnaire was reviewed by a panel of six experienced individuals; four research experts from the academic sector, and two Jordanian bank managers. Suggestions and recommendations provided by the experts were incorporated into the piloted questionnaire.

3- A back-translation method was employed to ensure no significant variations between the original English version, and the Arabic one.

4- A pilot study was conducted with 40 respondents to explore any possible difficulties or problems that might be encountered while completing the instrument. Comments about clarity of wording, questions order, instructions, and time were taken into consideration when preparing the final version of the questionnaire (Appendix 3A on page 321).

2) Reliability

The reliability of a measurement instrument refers to the extent to which the instrument is yielding accurate, consistent, and stable responses over time. When results are consistent, a conclusion can be made that these results are not affected by chance (Field, 2009; Saunders et al., 2012). In general, several reliability tests are employed to confirm the consistency of an instrument output, but the most widely held method by academics for measuring reliability is that checking for internal consistency, which can be examined through the inter-item consistency reliability test. According to Sekaran (2003), the internal consistency of a measure relates to the consistency of construct items and how these items correlate with one another.

Cronbach's alpha coefficient is considered the most frequently used test of inter-item consistency reliability (Saunders et al., 2012). In general, higher coefficients (more close to 1) indicate better inter-item reliability, whereas instruments with coefficients less than 0.6 are viewed as having poor reliability and coefficients of 0.7 and above are indicative of high reliability standards (Nunnaly, 1978; Sekaran, 2003; Field, 2009; Hair et al., 2010).

To assess the internal consistency of the measurement items in the questionnaire, a Cronbach's alpha test was performed on the data using SPSS 22 software. Table 3-3 below shows a summary of these results. It can be seen from Table 3-3 that the pilot test results indicate Cronbach's alpha values for the constructs under investigation to be above the acceptable level (0.70), with the two exceptions of OBSV and INV. Consequently, in order to improve these two constructs' internal consistencies, Cronbach's alpha test was performed again on the two constructs if any individual question deleted. The results appear in Table 3-4 on the next page. As a result of this step, items OBSV2 and INV4 were dropped from the OBSV and INV scales, and this action improved each construct's reliability. Table 3-5 on the next page displays the final pilot study reliability coefficients of the questionnaire.

Table 3-3: Initial Reliability Results of the Pilot Test

Construct	Number of Items	Cronbach's Alpha	Comment
All constructs	47	0.890	Acceptable
Perceived Usefulness	6	0.851	Acceptable
Perceived Ease of Use	6	0.775	Acceptable
Trialability	4	0.707	Acceptable
Compatibility	3	0.708	Acceptable
Perceived Financial Cost	3	0.737	Acceptable
Observability-visibility	3	**0.630**	Not Acceptable
Observability- result demonstrability	3	0.869	Acceptable
Innovativeness	4	**0.687**	Not Acceptable
Government Support	4	0.810	Acceptable
Information about Internet banking	3	0.949	Acceptable
Accessibility	4	0.873	Acceptable
Intention to Use	4	0.853	Acceptable

Table 3-4: Reliability Results of the Pilot Test if Item Deleted

Construct	Coding	Item	Cronbach's Alpha	Cronbach's Alpha if Item Deleted
OBSV	OBSV 1	I have seen many others using IB.	0.630	0.244
	OBSV 2	I have seen what others do using IB.		**0 .876**
	OBSV 3	It is easy for me to observe others using IB.		0.290
INV	INV1	If I heard about a new information technology, I would look for ways to experiment with it.	0.687	0.608
	INV2	Among my peers, I am usually the first to explore new Information technologies.		0.542
	INV3	I like to experiment with new information technologies.		0.639
	INV4	In general, I am hesitant to try out new information technologies.		**0.707**

OBSV: Observability-visibility; **INV**: Innovativeness.

Table 3-5: Final Reliability Results of the Pilot Test

Construct	Number of Items	Cronbach's Alpha	Comment
All constructs	45	0.887	Acceptable
Perceived Usefulness	6	0.851	Acceptable
Perceived Ease of Use	6	0.775	Acceptable
Trialability	4	0.707	Acceptable
Compatibility	3	0.708	Acceptable
Perceived Financial Cost	3	0.737	Acceptable
Observability-visibility	2	0.876	Acceptable
Observability- result demonstrability	3	0.869	Acceptable
Innovativeness	3	0.707	Acceptable
Government Support	4	0.810	Acceptable
Information about Internet banking	3	0.949	Acceptable
Accessibility	4	0.873	Acceptable
Intention to Use	4	0.853	Acceptable

3.5.3.5 Questionnaire Sampling Strategy

The use of samples as a means of study larger populations is common in all research disciplines (Easterby-Smith et al., 2012). In a research context, a sample is a sub-group or some portion of a larger population that a researcher aims to investigate (Sekaran, 2003; Zikmund, 2010). The rationale for using samples is summarised in the following points (Sekaran, 2003; Zikmund, 2010; Blumberg et al., 2011; Saunders et al., 2012):

1- Economic efficiency: studying a smaller group of people, organisations, events, or things is more suitable for any research budget since less financial resources are required than if every member of a population were approached. Additionally, the cost of analysing the collected data is less.

2- Time and effort savings: when a researcher wishes to collect data with limited time and human resources, collecting data from a sample is the most appropriate technique.

3- Accuracy and reliability of results: the probability of obtaining more accurate and reliable data from sample subjects is reported to be more than when trying to cover the entire population. Better data collection supervision and control, less human fatigue, and fewer errors are examples of the benefits of sampling, especially when a huge (nationwide) population is involved.

4- Destructive sampling: in some experimental settings, it is impossible to examine all population elements due to the nature of the test being applied. When the aim is to examine the dependability of car safety features that are designed to reduce the occurrence and consequences of cars accidents, manufacturers test their cars by carrying out a ‘crash’ test. Obviously, this requires the destruction of the product. Hence, it is impossible to examine all elements in the entire population, as this would mean there were no cars left to sell.

The current study is considered as a nationwide survey as its population is defined by all customers who have a bank account in Jordan. Therefore, it is clear that the assessment of all members of the research population is impossible, especially given the limited availability of finance, time, and effort to the researcher. Consequently, the study uses a sample.

A) Sampling Design

The sampling design is an important step in any study as it should allow the researcher to identify any unknown attributes of his/her particular research population, and with all such attributes identified, the results should allow for generalisation of the results to the entire research population (Sekaran, 2003; Zikmund, 2010). If a sample were incorrectly drawn from the population, it would be biased in its composition, and thus produce unreliable research findings (Patton, 2002; Easterby-Smith et al., 2012).

Any sampling design process usually begins by defining the intended research population (Zikmund, 2010; Blumberg et al., 2011). The relevant population is generally straightforward to identify as the research questions and objectives determine this (Robson, 2011). According to Blumberg et al. (2011), a population is the complete set of elements about which the researcher wishes to derive some clarification. In this study, the population of interest is all those Jordanians who are customers of at least one of the twenty-one commercial banks in the country, are aged eighteen or over, have some computer literacy, and are able to use the Internet. Individuals under eighteen years old were excluded from the sampling frame because whilst they may have bank accounts, they remain under the legal age to perform bank transactions independently. Individuals with no computer skills were also excluded due to their inability to use IB services even if they wanted. Likewise, people with no Internet experience were excluded because they would be incapable of banking online.

The next logical step in designing the sample was to identify the frame from which the sample would be selected. Unfortunately, despite efforts to obtain information about the numbers or names of current customers in the banks of interest, all banks were unwilling to allow access to such information, on the grounds of confidentiality. Hence, the researcher used the figures released by the Jordanian Department of Statistics regarding the Kingdom's estimated population by the end of 2013.

B) Sample size

According to Saunders et al. (2012), decisions regarding the sampling method or minimum sample size are influenced mainly by the availability of resources, among which is the sampling frame. In this case, the absence of such information meant

that the total Jordanian population was used as the basis for determining the sample size. According to the last reported data by the Department of Statistics in Jordan, the estimated population of the Kingdom at the end of 2013 was 6,530,000 from which 56% were eighteen years and above (DoS, 2013). Hence, based on Yamane's formula (Yamane, 1973), the size of the current research sample was calculated to be 400 as illustrated below:

$$n = \frac{\mathrm{N}}{1 + \mathrm{N}\,(e)^2} = \frac{3656800}{1 + 3656800\,(.05\,)^2} = 399.96 \approx 400$$

Where:

n: Sample size N: Population e: Sampling error (usually 0.05)

Nevertheless, other considerations concerning the adequacy of the sample size for specific statistical techniques usually influence the sample size decision (Field, 2009; Hair et al., 2010; Zikmund, 2010). As the current research employed several multivariate statistical techniques, the researcher ensured that the sample size was appropriate specifically to perform two statistical techniques (most sophisticated) to be used in data analysis, namely, Factor Analysis (FA), and Structural Equation Modelling (SEM).

According to Hair et al. (2010), the minimum sample size required to perform factor analysis depends on the research model complexity. As a general rule, a minimum of 10 cases for each variable to be analysed is acceptable. However, SEM requires a larger sample than other multivariate techniques, and they suggest a sample of 100 to 400 observations as being adequate for SEM of any quantitative data set. The sample size in the current study is in line with these two suggestions. The research model contains 12 different variables (see Chapter 2), thus implying a minimum of 120 (12 x 10) observations, which is less than 400 in the sample. Moreover, the sample size of 400 confirms the SEM condition (100 to 400). Consequently, the researcher was confident in undertaking the statistical analysis.

C) Sampling Technique

In general, the process of selecting sample subjects from a particular sampling frame allows for two types of sampling, probability sampling and non-probability sampling (Zikmund, 2010; Bryman and Bell, 2011; Easterby-Smith et al., 2012). In

probability sampling, sample subjects are drawn randomly from the sampling frame, meaning that every population element has a known and equal chance to be included in the sample (Sekaran, 2003; Zikmund, 2010). According to Easterby-Smith et al. (2012), probability-sampling techniques represent the case where the researcher would be confident about the representativeness of the sample to the population from which it is drawn. Hence, statistical inferences and estimations about the entire research population can be made based on the findings of the sample responses.

As probability sampling follows probability selection procedures, it is sometimes referred to as representative sampling (Robson, 2011). The researcher's confidence in the similarity of sample subjects' characteristics to those of the entire population makes probability samples the most appropriate samples in quantitative studies using surveys for data collection (Saunders et al., 2012).

Non-probability sampling, on the other hand, is appropriate when the researcher is not interested in making inferences about the entire population, having other goals than the statistical estimation of particular population characteristics. Such goals may involve: obtaining preliminary information about a phenomenon (exploratory research), obtaining data from specific kinds of people, obtaining data in an inexpensive, quick and timely manner, and piloting surveys in quantitative research (Sekaran, 2003; Zikmund, 2010; Robson, 2011). Unlike probability sampling, the chance in non-probability sampling for any element of the population to be sampled is unknown and highly subjective (Sekaran, 2003; Blumberg et al., 2011). As a result, non-probability sampling is sometimes referred to as purposive sampling in which the researcher follows his/her judgment to achieve a particular purpose (Zikmund, 2010).

As the current study is primarily quantitative in nature, using survey questionnaires to collect data, and since it aims to validate the applicability of the research model in the Jordanian context, it was important to be able to generalise the findings to all Jordanian customers, and hence, probability sampling was used to locate the required sample. However, since the study also adopted a mixed-methods approach, non-probability sampling was used to select semi-structured interviews subjects.

D) Sampling of the Questionnaire Respondents

Zikmund (2010) highlights that the nature of the research in terms of geographical breadth influences the sample design, and suggests that cluster sampling is advisable when the population elements are distributed over a wide geographical area. Moreover, Robson (2011) stresses that multi-stage probability sampling is considered as an extension of cluster sampling.

Given the nationwide population for the current study, a multi-stage probability sampling process was used, as summarised in Figure 3-1 on the next page, and detailed in Appendix 3D on page 333.

1- Initially, using cluster sampling, eighty-nine districts representing the whole country's geographical area, were grouped into twelve different governorates based on the official government classification (DoS, 2013).

2- Then, due to financial, time, and effort constraints, twenty of those eighty-nine districts were considered for further sampling, the required number of districts from each governorate being determined by the relative proportion of each governorate number of districts to the overall districts.

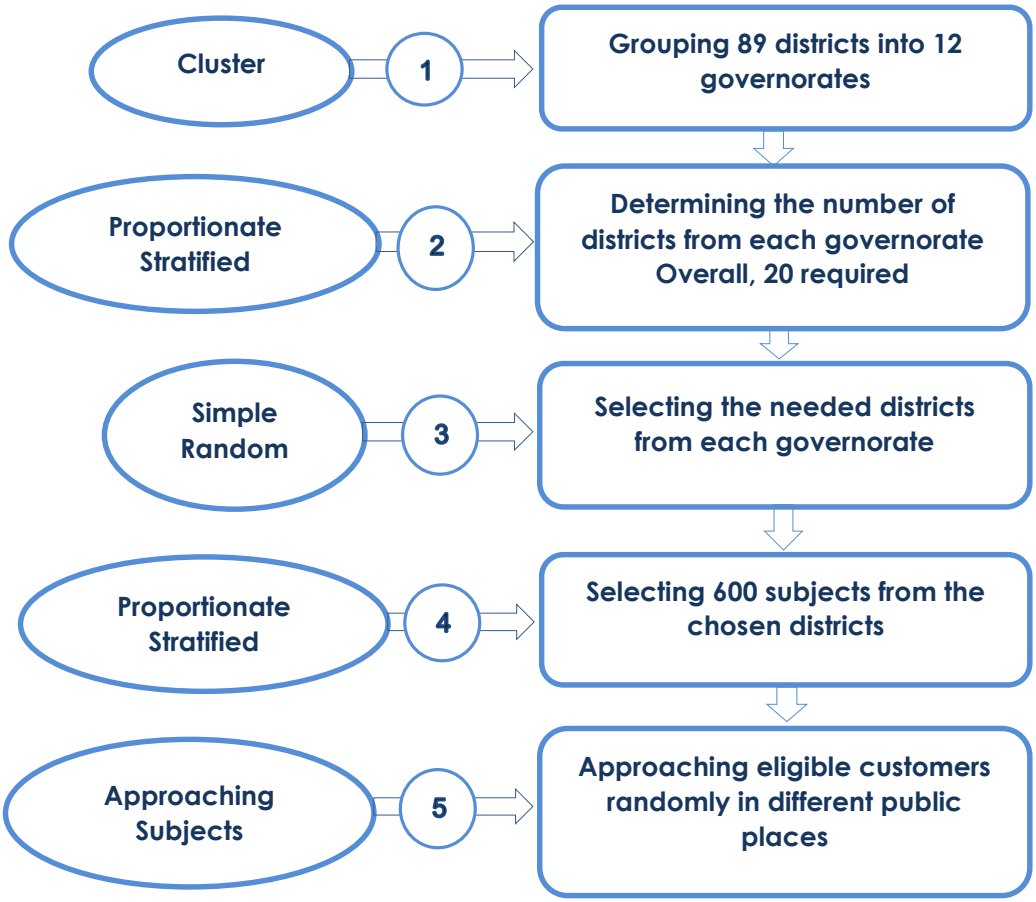
3- Simple random sampling was subsequently used in the third stage to select the required number of districts from each governorate.

4- At fourth stage, proportionate stratified sampling was used to identify 600 potential subjects based on the relative ratio of each district to the overall population of the twenty chosen districts. In order to ensure the minimum required sample size (400), the researcher decided to distribute 600 questionnaires in order to allow for non-completion or unusable questionnaires.

5- In the final stage, the targeted subjects were randomly approached in different public places in the twenty sampled districts. These public places included: banks, restaurants, coffee shops, public services buildings, public squares, sports gyms, hospitals, clinics, hotels, schools, universities, public libraries, restaurants, fast-food places, shopping mall food courts, mosques, churches, post offices, and bus stations.

It is worth mentioning here that even though probability sampling was used to locate proper subjects, the intention was to recruit many IB users as possible in order to facilitate the comparison between them and non-users later.

Figure 3-1: Sampling Process used in the Current Study



3.5.4 Semi-structured Interviews

While social research scholars have agreed that the questionnaire is an appropriate method to collect both quantitative and qualitative data, they admit that it would not enable the researcher to delve further into a respondent's mind. Therefore, the main goal of interviews, as an alternative data collection method is to secure an individual's perspective on what is happening in the research context (Patton, 2002). Interviews thus represent a commonly used approach to collect rich and highly informative data regarding a particular research problem, and are referred to as purposive conversations in which a researcher collects detailed research-related information in a flexible manner (Robson, 2011).

According to Easterby-Smith et al. (2012) and Saunders et al. (2012), interviews as a method of collecting primary research data, can be classified into three types depending upon their level of formality and structure. The first, the structured interview is essentially a means of collecting quantitative data via a set of standardised questions asked of all participants. This type of interview is usually employed as an alternative to self-administered questionnaires. The second, the semi-structured interview is a more flexible approach, which still involves the researcher in asking a list of questions about a particular theme, but allows the researcher to change their sequence and their wording, to include new questions and/or omit some of the questions s/he intended to ask, depending on how the conversation develops. The third, the unstructured interview is an encounter in which the researcher aims to explore aspects of a given research problem in more depth, and in this case, there may not be any pre-planned sequence or specific type of questions, most of the questions emerging from the immediate conversation setting.

Semi-structured and unstructured interviews, usually called qualitative interviews, are commonly used methods for data collection in qualitative research (Blumberg et al., 2011; Bryman and Bell, 2011). However, they might be used in different research settings according to the nature of the research problem, for example, in exploratory studies where the researcher's prime aim is to gain a considerable understanding of the participants' perspectives on a particular phenomenon or to develop broad preliminary ideas about a given research problem, unstructured interviews represent the most appropriate data collection technique. On the other hand, semi-structured interviews are more suitable for collecting data for explanatory studies as the goal is to understand the nature of relationships among all variables in more specific research situations (Sekaran, 2003; Bryman and Bell, 2011; Saunders et al., 2012).

Given these observations, and consistent with the current research objectives, semi-structured interviews were found the most appropriate technique to gather the qualitative data required for the explanatory phase in this study. Hence, they were used as a vehicle for supplementing the quantitative data obtained via the questionnaires, and for providing a richer narrative of respondents' motives and beliefs underpinning their questionnaire responses. The insights gained from the

interviews provide an in-depth understanding of the research problem as well as the factors affecting customers' adoption of IB services in Jordan.

3.5.4.1 Sampling for Semi-Structured Interviews

According to Clark and Creswell (2008), in mixed-method research, it is possible to use the quantitative sample for further sampling of subjects required for the qualitative dimension of the study. This can operate by choosing respondents, based on their fulfilment of certain criteria, as interviewees who can offer further, qualitative data as a supplement to the quantitative data already collected. This strategy ensures that interviewees possess the appropriate knowledge, as they already meet the criteria for participation in the survey. Hence, they should be good examples.

The number of examples in qualitative interviews should not be too small to prevent the researcher from gaining new insights, not too large to prevent him/her from conducting a deep analysis (Onwuegbuzie and Leech, 2007). Essentially, it should be big enough for the researcher to know when saturation has been reached. Hence, the sample size was largely determined by the interview objectives, the quality of the data being collected, and the availability of time, effort, and financial resources.

In the current study, the sample size was determined to be ten, and the individuals were selected from the survey respondents using purposive non-probability sampling. Three criteria were applied to recruit these interviewees: the first was that they had to be regular bank customers using banking services at least twice a month; the second was that they had to be familiar with IB services concepts and applications; and the third was that they had to have completed the questionnaire.

3.5.4.2 Interview Validity and Reliability

According to Guba and Lincoln (1994), two key criteria are usually employed by researchers to evaluate the quality and credibility of their research work, these being validity and reliability. These constructs have already been discussed, validity being noted as the extent to which the data collection method correctly measures what it was intended to measure, and reliability as concerning the consistency of the measurement instrument over time.

In order to ensure the validity and reliability of the qualitative data collected via the interviews, the following procedures were undertaken:

- The back translation method was used to translate the questions asked of the interviewees from English to Arabic.
- Clear and standardised procedures were followed when conducting each interview, when recording the proceedings, transcribing the data, and interpreting the data, thus enhancing the reliability of the process.
- Only themes supported (triangulated) by at least six different sources were taken into consideration, thus enhancing the validity of the process.
- Data triangulation was evident by the inclusion of primary and secondary data (interview transcripts, journal articles, bank policies and documents, and government strategies and policies) in the analysis.

3.5.4.3 Interview Pilot Test

Pilot interviews were conducted with two bank customers to obtain their initial feedback regarding the validity of the variables of interest, the intended interview questions and themes, and the general interview procedures. These pilot interviews helped the researcher to estimate the average time required for completion of the interviews, information that was needed not only for the researcher's planning, but also for that of the interviewees. The pilot interviews also helped the researcher to improve his performance during the interview, as they reminded him of his need to think clearly, probe and encourage participants to engage in discussion, and take notes when needed.

3.5.4.4 Interview Procedures

The semi-structured interviews were conducted with six Jordanian bank customers, three users of IB, and three who were not using the service at the time of the interviews (January 2015). Ten potential interviewees were approached through personal contact, telephone, or e-mail and invited to participate. To those who agreed to cooperate, a letter was sent. This letter included information about the purpose of the research, the expected interview duration, confirmation of anonymity and confidentiality, voluntariness of participation, and the interviewee's right to withdraw at any time of the interview (Appendix 3C on page 332). Thereafter, each potential interviewee was contacted again to establish the most appropriate date,

time, and place for the interview to take place. At the start of each interview, the researcher introduced himself and his research, and asked the interviewee to sign a consent form, designed to acknowledge the interviewee's voluntary participation, agreement to record the conversation, and providing the researcher's assurance of confidentiality and anonymity. This aspect of the interview enabled the researcher to establish a friendly atmosphere as he spoke of the importance of the research, the expected interview duration, and the main topics to be covered in the interview. All interviews were subsequently conducted by the researcher in Arabic.

The interview schedule covered four themes in line with the research objectives, which had been included within the questionnaire survey, and essentially, these enabled the interview to be divided into sub-sections, the first of which gathered general demographic information about the interviewees. The second section focused on the personal perceptions and beliefs about the factors that had been shown in the survey to be influential in Jordanians' decisions to adopt IB. The third section explored the opinions of the interviewee about the relationships among these factors as established in the research model (accepted hypotheses). And the fourth section dealt with interviewees' explanations for those hypotheses that had not been proven, and had been excluded from the final model. At the end of the interview, the researcher closed the conversation by thanking the interviewee for his/her co-operation.

The above procedures were repeated in the same sequence with each interviewee until saturation of the data was reached, which occurred after the sixth interview. Once, it became clear that the interviewees were offering no new ideas; the researcher ended the interview exercise, as he believed that the continuation of the process would not add new insights to the analysis. A formal thank you letter was later sent to all interviewees.

Using open questions, the researcher was able to gather much richer data than was possible using a questionnaire, since interviewees were able to speak without any restriction about any issue they felt might be important. All questions were directly related to the research objectives and were asked to all interviewees. However, the order of questions was sometimes changed and new questions were introduced depending on interviewees' responses (Saunders et al., 2012).

While four interviewees were happy to be recorded, two were not since they had

concerns about privacy and confidentiality. The four recordings that were made were transcribed by the researcher, and as recommended by Creswell (2014), the transcripts were checked by a fellow researcher in order to verify their accuracy. In respect of the two un-recorded interviews, contemporaneous notes were made by the researcher. Indeed, notes were also made during the recorded interviews as a means of assisting in the interpretation of the transcripts during subsequent analysis. Those parts of the transcripts that are presented as data in the findings were translated into English, whilst other data analysis procedures were undertaken with the original Arabic transcripts. The collected qualitative data was then uploaded to NVivo 11 software in order to code the data, clarify meanings, organise and explain the data, search for relationships, and gain an understanding of the various dimensions explored.

3.6 Statistical Analysis Techniques Used

Despite the fact that many statistical tests and techniques exist to analyse data, the choice of which to use is conditioned primarily by the research questions and the nature of the collected data (Saunders et al., 2012). Consequently, the statistical tests used in the present study were a function of its objectives and research questions.

Two statistical software packages namely, the Statistical Package for Social Sciences (SPSS) version 22, and Analysis of Moment Structures (AMOS) version 22 were used to analyse the quantitative data gathered via the questionnaire, and NVivo 11 software was used to analyse the qualitative data obtained from the semi-structured interviews and the relevant secondary qualitative data. Appendix 3F on page 338 summarises these statistical techniques, and a more detailed description of each appears in Chapters 4, 5, and 6.

3.7 Ethical Considerations

According to Zikmund (2010), and Saunders et al. (2012), it is important to pay attention to ethical issues in all research since this establishes trust between researchers and research participants, and enhances the overall reliability and credibility of the findings. Hence, an application was made to the Research Ethics

Committee at Liverpool John Moores University to undertake the study, and approval was granted on 29 April 2013. (Ref. 13/LBS/013).

Accordingly, several key ethical issues were considered across the different data collection stages in the study as follows.

1- All questions in both the questionnaire and semi-structured interviews were designed to avoid causing any harm, embarrassment, stress, or discomfort to participants.

2- All survey questionnaire participants (pilot test and main study) were asked for their verbal informed consent to participate prior to their involvement.

3- A participant information sheet was attached to all distributed questionnaires. This provided information about the purpose of the research, the importance of participation, estimated completion time, confirmation of anonymity and confidentiality, voluntariness of participation, the right to withdraw at any time, treatment of the collected data, and the contact information of the researcher in case of any further inquiries (Appendix 3A on page 321).

4- All semi-structured interview participants were provided with an information letter once they agreed to participate. This letter included information such as the purpose of the research, the expected interview duration, confirmation of anonymity and confidentiality, voluntariness of participation, and the interviewee's right to withdraw at any time in the interview (Appendix 3C on page 332).

5- Prior to each interview, participants were contacted to determine their most appropriate date, time, and place for the interview.

6- At the beginning of each interview, interviewees were asked to sign a standard consent form designed to acknowledge their voluntary participation, give assurance of confidentiality and anonymity, and secure their agreement to record the conversation.

3.8 Summary

This chapter has provided a detailed discussion of the methodology and methods adopted within the study. It has been shown that after due consideration of the various alternatives, a mixed-methods approach was selected based on the nature of the study and the research objectives. A post-positivist philosophical paradigm was found to be the most appropriate, allowing both quantitative and qualitative data to be collected using questionnaires and semi-structured interviews, the purpose of the interviews being to elaborate on the findings from the quantitative data. All choices made in respect of methodology and instruments have been fully justified, and the ethical approach to the study has been carefully detailed. The next chapter presents the descriptive analysis of the quantitative data obtained from the questionnaires.

Chapter 4: Quantitative Data Presentation and Analysis: Descriptive Analysis

4.1 Introduction

This chapter provides a descriptive analysis of the quantitative questionnaire data, and is divided into six sections. In the first section, a preliminary consideration of the data is presented showing the response rate and the process of data screening and cleaning. The second section deals with the demographic profiles of the respondents. The third section provides a preliminary reliability assessment of the main constructs in the present study. The fourth section deals with findings from the descriptive analysis of the data obtained on the study's major observed constructs. The fifth section provides comparisons between the IB users and non-users in the research sample, based on their demographic characteristics and their attitudes towards the current research variables. Finally, the sixth section offers a short summery.

4.2 Preliminary Data Consideration

4.2.1 Response Rate

Of 600 distributed questionnaires, 463 questionnaires were returned and considered valid for subsequent quantitative analysis. Table 4-1 on the next page details the response rates for all geographical districts included in the study, which represent the whole research sample. It is clear from Table 4-1 that 550 questionnaires were returned, but that 87 of these were unusable, for the following reasons: respondents had put the same answers on all the Likert scale items (36 cases), missing demographic data (27 cases), and too many missing responses (24 cases). Accordingly, 463 questionnaires were considered valid for further data analysis, thereby giving a high response rate of 77.1% of the original sample size.

4.2.2 Data Screening and Cleaning

To ensure the accuracy of the statistical techniques used in the study, it was necessary to screen and clean the raw quantitative data collected. According to Hair et al. (2010), different multivariate statistical techniques including factor analysis and SEM, have great theoretical ability to help researchers in different fields to test their hypotheses and assess the viability of their proposed models. That said, such techniques are not without restrictions. Therefore, data screening and cleaning is considered an important concern when the intention is to use multivariate analysis, and whilst it might be time-consuming and exhaustive, as noted by Kline (2011), the

decision not to follow this process can precipitate many disappointments resulting from wrong model estimations and poor fit.

Table 4-1: Detailed Response Rates for Distributed Questionnaires

Governorate	District(s)	Distributed	Retrieved	Unusable	Usable	%
Amman	Marka	202	193	41	152	75.2
	Al-Jami'ah	116	102	7	95	81.9
	Na'oor	17	15	9	6	35.3
Al- Balqa	Ira and Yargha	4	4	1	3	75
	Ain Albasha	52	46	11	35	67.3
Al-Zarqa	Russeifa	19	15	0	15	78.9
Madaba	Dieban	5	4	0	4	80
Irbid	Bani Kenanah	31	29	0	29	93.5
	Bani Obeid	37	31	6	25	67.6
Mafraq	Bal'ama	8	8	0	8	100
	Salhiya	7	7	0	7	100
	Hosha	5	5	0	5	100
Ajlun	Kufranjah	11	11	0	11	100
Karak	Karak Qasabah	26	26	3	23	88.5
	Qasr	6	6	0	6	100
Tafiela	Bsaira	8	7	0	7	87.5
Ma'an	Iel	3	3	0	3	100
	Mraighah	2	2	0	2	100
Aqaba	Aqaba Qasabah	36	31	9	22	61
Jarash	Mestabah	5	5	0	5	100
	Total	**600**	**550**	**87**	**463**	**77.17**

The preliminary data screening was performed by checking the basic frequency and descriptive statistics distributions. Any odd or wrongly coded values were detected and then properly corrected. However, several cases were found to have missing responses. Table 4-2 on page 120 shows the frequencies and the percentages of missing data.

Scheffer (2002) claims that regardless of how much a researcher attempts to have a full dataset in response to any particular survey, or how well s/he has designed an experiment, almost all research efforts are afflicted by missing data. Hair et al. (2010) highlight that the problem of missing data affects the statistical analysis of the original dataset in two ways; firstly, by reducing the power of the statistical techniques in indicating any relationships in the dataset; and secondly, by generating bias in the process of parameter estimations.

Although no clear rule about the acceptable percentage of missing data appears in the literature, researchers suggest that less than 1% missing values of any variable is usually considered very slight and unimportant, 1-5% remains manageable by many statistical methods, 5-15% requires more unconventional and complicated techniques to deal with, and more than 15% missing values of a given dataset could harshly distort any kind of further data interpretation (Acuna and Rodriguez, 2004; Cohen et al., 2013). Additionally, Hair et al. (2010) and Kline (2011) claim that when the amount of missing values within a large dataset is relatively small, the researcher faces a less serious problem and could treat those missing values easily since any treatment option could lead to similar results.

It can be seen from Table 4-2 that the maximum percentage of missing data for the questionnaire items in the current study was 0.6%, meaning that this is extremely low and within the satisfactory level. However, to treat those missing values, the researcher decided to apply regression-based imputation as this method takes into consideration the relationships among the different variables based on the overall responses, thus leading to more accurate value estimation (Kline, 2011).

After treating the missing values, the next logical step was to consider outliers (univariate and multivariate), representing those cases with odd and/or extreme scores from other dataset observations. Errors in data entry, erroneous sampling techniques, missing values in calculation, and extreme responses on multi-point scales are among the many causes of outliers.

First, a check for univariate outliers was applied. On each of the variable observations, univariate outliers were identified by using z-score frequency distributions. All of the scores for each variable were converted to standard scores (z-scores) and then checked against the intended range. As a rule of thumb, a range of (±3 to ±4) z-scores for samples larger than 80 is considered acceptable with any individual observation exceeding that limits being treated as a univariate outlier (Hair et al., 2010). The z-scores of ±3.29 - the z-score that corresponds to a probability of 0.001-were used in order to identify any odd values within each variable's observations. No standard score less than -3.29 or greater than +3.29 was identified with regard to all research variables, which in turn means the absence of univariate outliers from the dataset of the current study.

Table 4-2: Missing Values Statistics

Item	Freq.	%	Item	Freq.	%
PU1	1	0.2	OBSR2	1	0.2
PU2	0	0	OBSR3	1	0.2
PU3	0	0	OBSV1	2	0.4
PU4	0	0	OBSV2	0	0
PU5	0	0	INV1	1	0.2
PU6	1	0.2	INV2	1	0.2
PEOU1	1	0.2	INV3	0	0
PEOU2	0	0	GVS1	1	0.2
PEOU3	1	0.2	GVS2	1	0.2
PEOU4	0	0	GVS3	2	0.4
PEOU5	0	0	GVS4	0	0
PEOU6	0	0	IIB1	0	0
TRB1	2	0.4	IIB2	2	0.4
TRB2	1	0.2	IIB3	1	0.2
TRB3	1	0.2	ACC1	3	0.6
TRB4	1	0.2	ACC2	2	0.4
COMP1	1	0.2	ACC3	2	0.4
COMP2	1	0.2	ACC4	2	0.4
COMP3	0	0	IU1	0	0
PFC1	1	0.2	IU2	0	0
PFC2	0	0	IU3	1	0.2
PFC3	3	0.6	IU4	1	0.2
OBSR1	0	0			

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSV**: Observability-visibility, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Next, multivariate outliers were detected by calculating the Mahalanobis distance (D^2) which represents the distance of a case from the multidimensional mean of a distribution. Then, those calculated D^2 were compared with a critical of 80.077, which is the Chi-squared distribution (χ^2) value that corresponds with degrees of freedom of 45, which equals the number of the current study variables, and probability of ($p<0.001$). The results revealed that there were 15 multivariate outliers within the dataset. Table 4-3 on the next page shows those results, which reveal that χ^2 value for those cases ranged from 80.803 to 103.619, thus requiring further consideration as they might affect the requirements of multivariate statistical tests such as factor analysis and SEM.

However, the researcher's decision was to retain those outliers for the following reasons. Firstly, it is clear that the number of these outliers is relatively small compared to the overall sample size (463). Kline (2011) suggests that a few outliers within large samples should be seen as less problematic and not harmful to the data analysis and interpretations. Secondly, after further investigation, it was found that these cases were presenting responses from respondents of the same targeted population with unusual opinions from the majority of the sample. Therefore, no evidence of sampling errors was revealed. Moreover, Hair et al. (2010) advise that multivariate outliers, if they do represent cases from the same targeted population, should be retained in order to enhance the generalisability of the research findings.

Table 4-3: Multivariate Outliers

Case No.	Mahalanobis distance (D^2)
123	80.99432
386	81.47765
431	82.38802
117	82.16464
166	83.70987
84	84.96426
429	86.54415
275	86.48213
437	87.77289
401	89.73736
78	93.77768
415	94.92536
258	100.20514
135	102.09258
203	103.58762

Normality of the data distribution is considered one of the most important assumptions underlying various multivariate analysis tools such as factor analysis and SEM. The multivariate normality of a particular distribution confirms that the shape of individual variables' distribution or that the distribution of a combination of two or more variables are corresponding with the bell-shaped normal distribution (Doornik and Hansen, 2008; Hair et al., 2010). Any violation of the normality assumption could severely affect the process of data analysis as well as goodness-of-fit indices for the proposed SEM model (Kline, 2011).

Skewness and Kurtosis are two ways of considering data that will indicate the normality of a given dataset distribution (Doornik and Hansen, 2008; Thulin, 2014).

Skewness demonstrates the symmetry of distribution, while kurtosis refers to how much the distribution is peaked or flat compared with the normal distribution (Hair et al., 2010). In general, a normally distributed distribution has skewness and kurtosis values of zero. However, scholars provide general guidelines about when skewness and kurtosis values might become problematic. For example, Hair et al. (2010) suggest that any skewness and kurtosis values falling outside the range of -1 to +1 represent a potential normality problem. On the other hand, many researchers are less conservative, recommending that skewness less than an absolute value of 3, and a kurtosis index with an absolute value of less than 8 do not indicate a significant normality problem (West et al., 1995; Doornik and Hansen, 2008; Kline, 2011).

Table 4-4: Scale Variables Normality Assessment

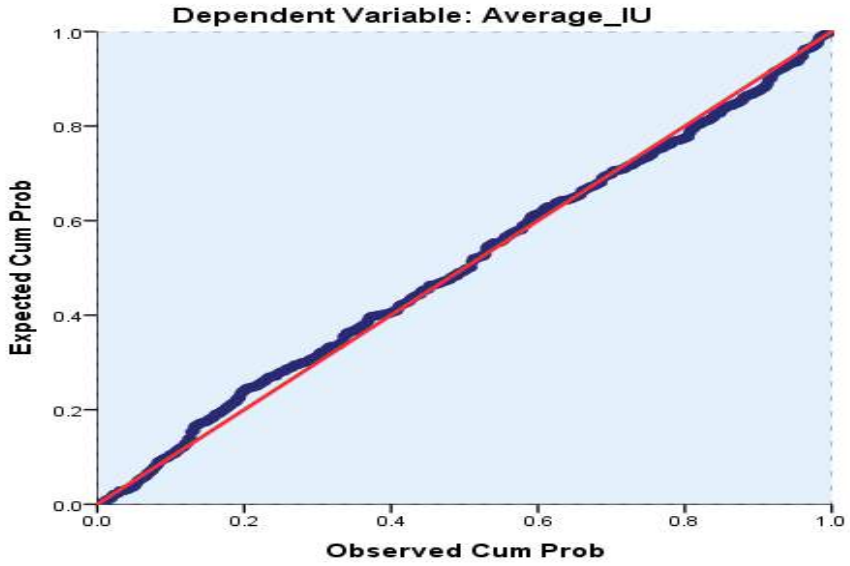
Item	Skewness	Kurtosis	Item	Skewness	Kurtosis
PU1	-.958	.266	OBSR2	.180	-.954
PU2	-.818	-.043	OBSR3	.517	-.946
PU3	-.895	.065	OBSV1	-.650	-.569
PU4	-.888	.085	OBSV2	-.333	-1.019
PU5	-.880	.139	INV1	-.224	-.947
PU6	-.850	.127	INV2	-.023	-.938
PEOU1	-.835	-.232	INV3	-.299	-.912
PEOU2	-.880	-.065	GVS1	-.588	-.698
PEOU3	-.710	-.528	GVS2	-.751	-.172
PEOU4	-.826	-.166	GVS3	-.414	-.640
PEOU5	-.715	-.507	GVS4	-.475	-.596
PEOU6	-.716	-.405	IIB1	.453	-.561
TRB1	-.789	.238	IIB2	.354	-.823
TRB2	-.797	.330	IIB3	-.586	-.148
TRB3	-.553	-.081	ACC1	-1.112	.560
TRB4	-.690	.274	ACC2	-.961	.681
COMP1	-.509	-.798	ACC3	-1.023	.398
COMP2	-.638	-.573	ACC4	-1.047	.492
COMP3	-.586	-.813	IU1	-.745	-.322
PFC1	-.785	-.298	IU2	-.843	-.034
PFC2	-.885	.092	IU3	-.731	-.400
PFC3	-.785	-.298	IU4	-.760	-.280
OBSR1	.137	-.968			

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSV**: Observability-visibility, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

In the current study, all individual measured items were tested for normality using skewness and kurtosis statistics as shown in Table 4-4 above, which reveals that for the 45 items, the maximum absolute value of skewness and kurtosis were 1.112 and 1.019 respectively, thereby indicating no significant deviation from normal

distribution. A further normality assessment was also made from the residual analysis using the expected normality P-P plot for the regression residuals, shown in Figure 4-1 below. An acceptable level of normality was revealed as the standardised predicted value formed a line with the standardised residuals.

Figure 4-1: Normal P-P Plot of Regression Standardised Residual



4.3 Background and Demographic Profile of the Study Sample

The results relating to parts one and two of the questionnaire, i.e. demographic data, and IB usage data are now presented and described. Frequency distributions in respect of demographics and IB usage are used to shed more light on the study sample characteristics.

4.3.1 IB Usage

As can be seen from Table 4-5 on the next page, 65.4% of respondents were non-IB users, while the remaining 34.6% reported having had experience with IB and were using such services at the time of their participation in the study. However, these percentages not necessarily reflect the reality of IB adoption rate in Jordan, as mentioned earlier in chapter 3, the researcher and his team made considerable effort to recruit proper number of subjects from the two groups (users and non-users) in order to support later comparisons. Therefore, these numbers are only describing the current study's sample not the real world's figures.

Table 4-5: IB Users and Non-Users among Respondents

Variable	Category	Frequency	%	Cumulative %
I am currently using Internet banking services	YES	160	34.6	34.6
	NO	303	65.4	100.0

4.3.2 Demographics

The demographic data relating to gender, age, education, occupation, and monthly income are summarised in Table 4-6 on the next page.

From this, it is seen that the gender breakdown was 52.5% male and 47.5% female, a result that is in line with the latest reported gender profile in Jordan, which is 51.5% and 48.5% for males and females respectively (DoS, 2013). The percentages in this study are different than those obtained by other researchers into IB; for example, AL-Majali (2011) reported percentages of 73.7 and 26.3 for males and females respectively, in the study by Al-Sukkar and Hasan (2005) there were 82.7% male and 17.3% female respondents, and in another study by Al-Qeisi and Al-Abdullah (2013), the percentages were 60% and 40% respectively for males and females. The result in the current study may be the outcome of the involvement of many females as data collection assistants, which is believed to have increased the participation of females who would have been reluctant to co-operate with a male, given the conservative culture of Jordan.

Table 4-6 also indicates that participation in the survey was highest among respondents aged 21 to 40 years of age (64%), and lowest among respondents over 60 years old (1.1%). It also shows that the majority of participants are 50 or less years of age (88.3%), only 54 of the 463 respondents being more than 50 years old. This result reflects the fact that 87% of the Jordanian population are below 45 years old (DoS, 2013). Furthermore, very young customers (below 21 years old, 7.8%) were less represented as a considerable portion of this age group were students or unemployed people, and accordingly did not have a bank account.

The occupational distribution of the respondents varied widely. Most, as seen from Table 4-6, were salaried employees in either the public or private sector (63.1%). Students and self-employed respondents represented 17.5% and 11% of the overall

respondents respectively. However, 39 respondents reported having other occupational status including being retired or unemployed.

Table 4-6: Demographic Data of Questionnaire Respondents

Variable	Category	Frequency	%	Cumulative %
Gender	Male	243	52.5	52.5
	Female	220	47.5	100
Age Group (Years)	15-20	36	7.8	7.8
	21-30	141	30.5	38.2
	31-40	155	33.5	71.7
	41-50	77	16.6	88.3
	51-60	49	10.6	98.9
	Over 60	5	1.1	100
Level of Education	High school	55	11.9	11.9
	Diploma	57	12.3	24.2
	Bachelor	238	51.4	75.6
	Master	81	17.5	93.1
	Doctorate	31	6.7	99.8
	Other	1	0.2	100
Current Occupation	Student	81	17.5	17.5
	Public Sector	156	33.7	51.2
	Private sector	136	29.4	80.6
	Self-employed	51	11	91.6
	Other	39	8.4	100
Monthly Income (JDs)	Less than 300	47	10.2	10.2
	300-500	157	33.9	44.1
	501-800	161	34.8	78.8
	801-1,100	48	10.4	89.2
	More than 1,100	50	10.8	100

Finally, with regard to income level, responses were received from customers with different levels; most (68.7%) belonged to the middle-income group having a personal monthly income between JD 300-800. The low-income category (i.e. personal monthly income below 300) formed 10.2% of the respondents, while the remaining two high-income categories (JD 801-1,100 and more than JD 1,100) accounted for 10.4% and 10.8% of the total number of respondents respectively.

From the latest report of monthly income levels in Jordan prepared by the Jordanian Department of Statistics for 2014, it can be seen that income level distribution in the present study is to some extent consistent with those published figures, which

indicate that Jordanian individuals with income level between JD 300-900 represent 68.2% of the country's total population (DoS, 2015).

4.4 Preliminary Reliability Analysis

The reliability of a measurement instrument refers to the extent to which it yields accurate, consistent, and stable responses over time. When the result is consistent, a conclusion can be drawn that results are not affected by chance (Field, 2009; Saunders et al., 2009). It is worth mentioning that performing an internal consistency test in this early stage of data analysis was done to ensure that all constructs had acceptable Cronbach's alpha scores before applying any further statistical techniques (Factor Analysis, SEM, etc.). Therefore, in order to assess the internal consistency of all measurement items in the survey (all scale measures), Cronbach's alpha test was performed by running the data using SPSS 22.

The results shown in Table 4-7 below indicate that Cronbach's alpha scores for all individual constructs are in the range of 0.832 to 0.977, the overall score being 0.953. Hence, all were above the recommended level of 0.7 (Nunnaly, 1978; Sekaran, 2003; Field, 2009; Hair et al., 2010). Consequently, it could be said that no internal consistency problem was revealed up to this stage of data analysis.

Table 4-7: Preliminary Reliability Test Results

Construct	Number of Items	Cronbach's Alpha	Comment
All constructs	45	0.953	Acceptable
Perceived Usefulness	6	0.977	Acceptable
Perceived Ease of Use	6	0.961	Acceptable
Trialability	4	0.942	Acceptable
Compatibility	3	0.960	Acceptable
Perceived Financial Cost	3	0.940	Acceptable
Observability-visibility	2	0.832	Acceptable
Observability- result demonstrability	3	0.894	Acceptable
Innovativeness	3	0.916	Acceptable
Government Support	4	0.882	Acceptable
Information about Internet banking	3	0.958	Acceptable
Accessibility	4	0.941	Acceptable
Intention to Use	4	0.962	Acceptable

4.5 Descriptive Analysis of Respondents' Responses

This section presents a descriptive analysis of the data obtained from the sample. The full results appear in Appendix 4A on page 339. The following sub-sections report responses from the sample on the major constructs of the present study in the form of central tendency and dispersion.

The questionnaire consists of 12 major constructs which were measured by 45 different items (statements) using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Respondents were asked about their agreement or disagreement with each statement. Responses were coded as follows: number 5 indicated that they strongly agreed with the statement, number 4 agreed, number 3 neutral, number 2 disagreed, and number 1 strongly disagree with what the statement states. Additionally, number 3 was chosen as the midpoint on the scale in order to make a distinction between the respondent's agreement and disagreement.

1) Perceived Usefulness

Respondents were asked to indicate the extent to which they saw IB services useful for them in performing their banking activities. The results show the mean scores of the six items used to measure PU are between 3.93 and 3.99 with standard deviation ranging from 1.039 to 1.081. It could be concluded that most of respondents (mean score is more than the midpoint of 3) were agreed about the PU of IB in terms of effort and timesaving as well as enhancing their overall banking activities.

2) Perceived Ease of Use

The findings reveal that the mean scores for PEOU were between 3.67 and 3.82, thereby indicating that a significant number of respondents has no major technical concerns when dealing with IB services and applications. Instead, they consider it easy to learn, understand, and use. Moreover, the descriptive statistics for PEOU also revealed that the respondents were not very dispersed around their mean scores on individual items (standard deviations between 1.096 and 1.192).

3) Trialability

Using a five-point Likert scale and four items, the TRB construct was measured. As shown in Appendix 4A, the observed mean ratings ranged from 3.77 to 3.82 and standard deviations from .941 to 1.053. These statistics suggest high agreement among respondents regarding the need to trial IB before deciding whether to adopt it.

4) Compatibility

The computation of respondents' attitudes of the extent to which IB is compatible with their various life aspects revealed mean scores of the three items used to measure the construct as 3.48, 3.58, and 3.59, indicating agreement among respondents about the compatibility of IB with their banking needs, work, and lifestyle.

5) Perceived Financial Cost

Respondents' attitudes towards the financial costs of IB in Jordan were measured by three items, the average mean scores for which were 3.833 on the five-point scale, thus reflecting respondents' agreement with the items. In addition, the average standard deviation of 1.073 indicates a little dispersion from that mean score. Essentially, respondents agreed that the financial costs associated with using IB in Jordan are within acceptable levels. These costs may include the necessary PCs or tablets as well as the cost of going online. Moreover, they agreed that using such services would save them some extra costs associated with other traditional ways of banking.

6) Observability-Result Demonstrability

Respondents were asked to give their opinions concerning three statements related to the degree to which they perceived the outcomes of IB as easy to understand and explain to others. The findings revealed that the three items had means over three (i.e. midpoint), and an average mean of 3.36, indicating that a relatively high level of agreement existed among respondents about this constructed. Basically, respondents had good information about the results of using IB and found no difficulty in expressing those results to others.

7) Observability-Visibility

Regarding the OBSV construct, respondents were asked to respond to two statements in order to measure the extent of their observation of other people's IB usage. The mean scores reveal an average of 2.78, indicating a level of disagreement among the respondents. Specifically, while they reported very low agreement on the second statement which related to seeing others using IB (M = 2.82) they disagreed on the other statement relating to seeing what others do exactly when performing IB transactions (M = 2.49). To put differently, it seems that IB is not easily visible by other people, which might be reasonable conclusion, as individuals typically prefer to conduct IB in more private settings.

8) Innovativeness

Three items were used to measure the INV construct in this study. The mean scores were 3.46, 3.09, and 3.29, all above the midpoint of three on the five-point Likert scale. The average mean score was 3.28, which indicated the participants' agreement on the scale measures. Specifically, these results mean that the majority of the respondents identified themselves as innovative people who are willing to experience new technologies as they hear about them. Again, the average standard deviation was 1.15 indicating low desperation among respondents' scores around the average mean.

9) Government Support

The GVS construct was measured by four items on the five-point Likert scale where three represents a midpoint between agreement and disagreement levels. All mean scores were above 3, reflecting a high level of agreement among the respondents, with the highest mean score of 3.71 being found for GVS1 (The Jordanian government encourages and promotes the usage of Internet and e-commerce), and the lowest mean 3.52 being for GVS3 (The Jordanian government is driving the development of IB). Moreover, the average mean score was 3.61 with an average standard deviation of 1.23. Hence, the respondents believed that to some extent, the Jordanian government has provided the necessary infrastructure (technically and legally) as well as taking certain actions to ensure the successful implementation of IB in the country.

10) Information about IB

In respect of IIB, participants reported disagreement on all the three items measuring the construct, the average mean of 2.69 falling below the midpoint of 3. Clearly, most respondents felt there was insufficient information about IB services.

11) Accessibility

With an average mean score of 4.01, the results of ACC construct indicate strong agreement among the sample respondents on IB accessibility. The means of the four items ranged from 3.96 to 4.11 with an average standard deviation of 1.01. In more practical terms, it was found that most respondents had the required resources (computers and access to the Internet) to use IB.

12) Intention to Use

Agreement emerged among respondents to use IB in the near future, all four mean scores being above 3 (the midpoint). The average mean score was 3.7 and average standard deviation was 1.08.

4.6 Respondents' Segmentation

To shed more light on IB adoption in Jordan, the sample was divided into two groups, IB users, and non-users. Various associations between the two groups were then performed to discover whether respondents differed based on their demographic characteristics as well as their attitudes towards the current research variables.

4.6.1 Users and Non-Users Demographic Observations on Dependence

Observations of Jordanian IB users and non-users in terms of the demographic characteristics of gender, age, education, occupation, and monthly income are now presented. Chi-square tests were performed to examine the impact of these demographic variables on the two groups' decisions to adopt IB services in Jordan. At this point, it is important to have a good understanding of the Chi-square test and its underlying assumptions.

The Chi-square test for independence is a non-parametric technique used to explore any significant relationship between two categorical variables from the same

sample. This test begins with the hypothesis of no association, or no relationship, between the two variables under consideration (the null hypothesis). The alternate hypothesis states that the two variables are associated. The decision to reject or accept the null hypothesis depends on the p-value associated with the resulted Chi-square statistic. If the p-value is less than a predetermined significance level (usually 0.05), the null hypothesis is rejected, then the assumption that the two variables are independent (no association) is rejected and the alternate hypothesis assumption of the association between the two variables is accepted.

Like any other statistical technique, the Chi-square test makes some specific assumptions about the data in order to ensure the statistical suitability of the test. The first assumption relates to the sampling method, which must involve a random sample chosen from the entire population. The second assumption is that the sample is large enough, with the population for each variable being at least ten times larger than the sample. The third assumption is that the two variables are both categorical. Finally, the last assumption is that the expected frequency of any sub-category of the two variables is at least five, more specifically, in any frequency table, each frequency cell of the table should present five or more expected frequency counts (Field, 2009; Pallant, 2013).

A preliminary check of the data was conducted to ensure that there was no violation of any of the above assumptions above. This revealed that all assumptions were met for all involved variables except the last one (expected frequencies assumption) for two sub-categories in two variables: users and non-users in the “over 60” age category, and users and non-users in the “other” level of education variable. The expected frequencies in those four cells were 1.7, 3.3, .3, and .7 respectively as shown in Table 4-13 on page 139. Therefore, in order to keep all Chi-square test assumptions unviolated, the two aforementioned sub-categories were excluded when applying the test.

1. Gender Observations

Table 4-8 on the next page depicts the gender distribution of the respondents, from which it is seen that in, 160 respondents were IB users (34.6% of the total respondents) and of these 99 were males (61.9% of the total users) and 61 were females (38.1% of the total users). Further, 303 respondents were IB non-users (65.4 % of the total respondents) and of those non-users, 144 respondents were

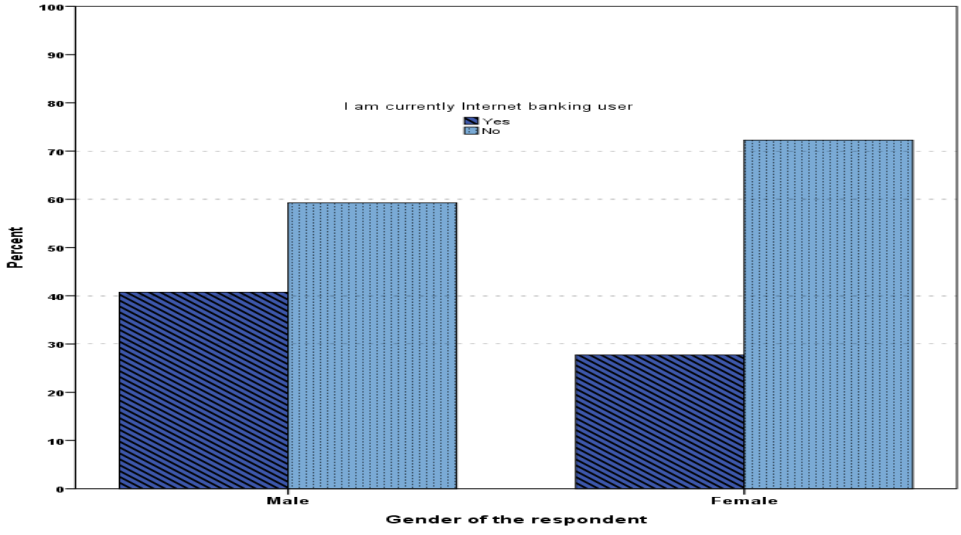
males (47.5% of the total non-users) and the last 159 non-users were females (52.5% of the total).

Considering the above results, it can be concluded that while most users were males, female and male non-users' percentages were close, and represent 52.5% and 47.5% of the total number of non-users respectively. In addition, since the p-value (0.003) is less than the significance level (0.05) the null hypothesis was rejected. Thus, we conclude that the Chi-square statistics (χ^2 (1) = 8.646) in Table 4-13 on page 139 revealed a significant association between the respondent's gender and their decision to use IB services. This association reflects the fact that among male respondents, about 40.7% were IB users and 59.3% were not, whereas when it came to females, about 72.3% were non-users and only 27.7 % of them were users, as shown in Figure 4-2 below. Therefore, we can conclude that the gender of the respondents had a significant influence, males being more willing to use IB than females.

Table 4-8: Gender Observations for Users and Non-Users

	Users			Non-users			Total	
	Frequency	% Users	% Gender	Frequency	% Non-Users	% Gender	Freq.	%
Male	99	61.9	40.7	144	47.5	59.3	243	52.5
Female	61	38.1	27.7	159	52.5	72.3	220	47.5
Total	160	100		303	100		463	100

Figure 4-2: Gender Distribution among Users and Non-Users



2. Age Observations

The age distribution of users and non-users shown in Table 4-9 below, reveals that most users were within the 21-30 and 31-40 age groups (75% of the total users). Further, while almost 17% of the total number of users were aged between 51 and 60 years old, only 3.8% of them were under 20 years old, and no respondent was over 60 years. Table 4-9 shows that most non-users were also in the same two age groups as users (21-30) and (31-40) with 27.7% and 30.4% respectively.

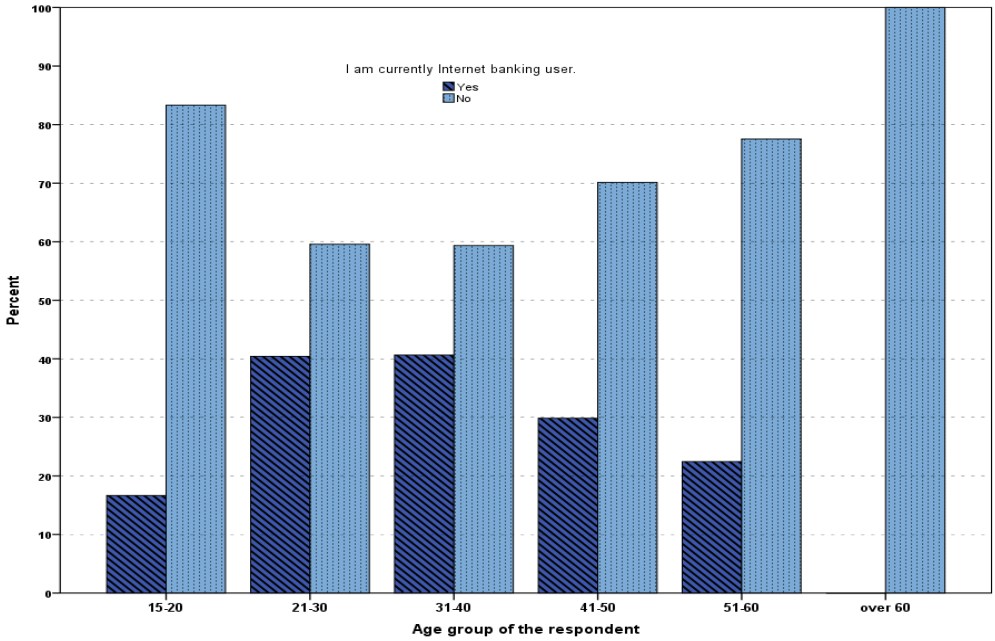
These results would seem to be attributable to the fact that the majority of the respondents (64%) were within the 21-30 and 31-40 age groups, which indicates that the composition of the study sample itself has affected the proportions of users and non-users.

Moreover, the Chi-square statistics shown in Table 4-13 on page 139 revealed a significant ($p < 0.05$) association between using IB and the respondent's age group χ^2 (5) = 16.347, p = 0.006. Specifically, this can be seen by the gaps between the percentages of users and non-users within the age groups. While Figure 4-3 on the next page shows that 40.6% of respondents in the 31-40 age group, and 40.4% of respondents in the 21-30 age group were users, the majority of much younger customers (less than 21 years) (83.8%) identified themselves as non-users, as did people in the 51-60 and 41-50 age groups (77.6% and 70.1% respectively).

Table 4-9: Age Observations for Users and Non-Users

	Users			Non-users			Total	
	Frequency	% Users	% Age group	Frequency	% Non-Users	% Age group	Freq.	%
15-20	6	3.8	16.7	30	9.9	83.3	36	7.8
21-30	57	35.6	40.4	84	27.7	59.6	141	30.5
31-40	63	39.4	40.6	92	30.4	59.4	155	33.5
41-50	23	14.4	29.9	54	17.8	70.1	77	16.6
51-60	11	6.9	22.4	38	12.5	77.6	49	10.6
Over 60	0	0.0	0.0	5	1.7	100	5	1.1
Total	160	100		303	100		463	100

Figure 4-3: Age Distribution among Users and Non-Users



3. Education Observations

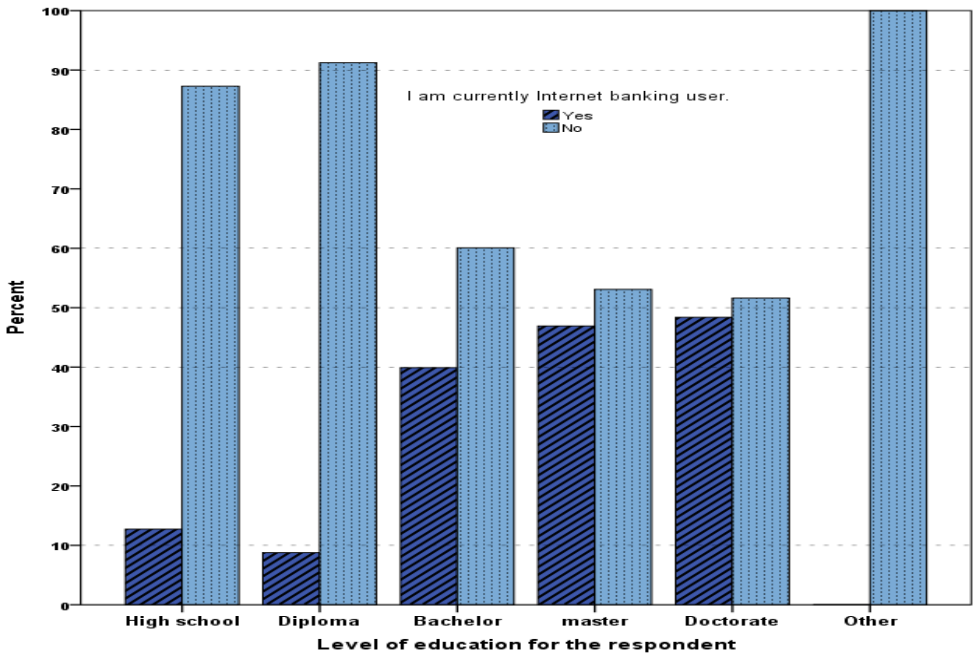
In terms of education level, it can be seen from Table 4-10 on the next page that IB users came mainly from two categories, these the holders of BA degrees, and postgraduate qualifications who represented 59.4% and 23.8% of the total users respectively. Participants with doctorates represented 9.4% of users, 4.4% were high school degree holders, and the remaining 3.1% held two-year diplomas.

The results in Figure 4-4 on the next page also show that most of the diploma and high school holders were non-users (91.2% and 87.3% respectively). Moreover, the only participant with another professional educational level was also a non-user. Later, the Chi-square results as depicted in Table 4-13 on page 139 indicated that education and IB adoption are associated (χ^2 (5) = 39.418, $p < 0.05$) showing that more educated individuals tend to be more willing to use the service.

Table 4-10: Education Observations for Users and Non-Users

	Users			Non-users			Total	
	Frequency	% Users	% Education	Frequency	% Non-Users	% Education	Freq.	%
High school	7	4.4	12.7	48	15.8	87.3	55	11.9
Diploma	5	3.1	8.8	52	17.2	91.2	57	12.3
Bachelor	95	59.4	39.9	143	47.2	60.1	238	51.4
Master	38	23.8	46.9	43	14.2	53.1	81	17.5
Doctorate	15	9.4	48.4	16	5.3	51.6	31	6.7
Other	0	0.0	0.0	1	0.3	100	1	0.2
Total	160	100		303	100		463	100

Figure 4-4: Education Distribution among Users and Non-Users



4. Occupation Observations

The occupation distribution among participants as illustrated in Table 4-11 on the next page shows that two categories of occupation dominated the both users and non-users. The majority of users were from the public and private sectors (70.1%); likewise, the majority of non-users were also from these two categories (59.4%).

This may be accounted for by the age distribution of the sample as the majority of the respondents came from the young and middle age groups.

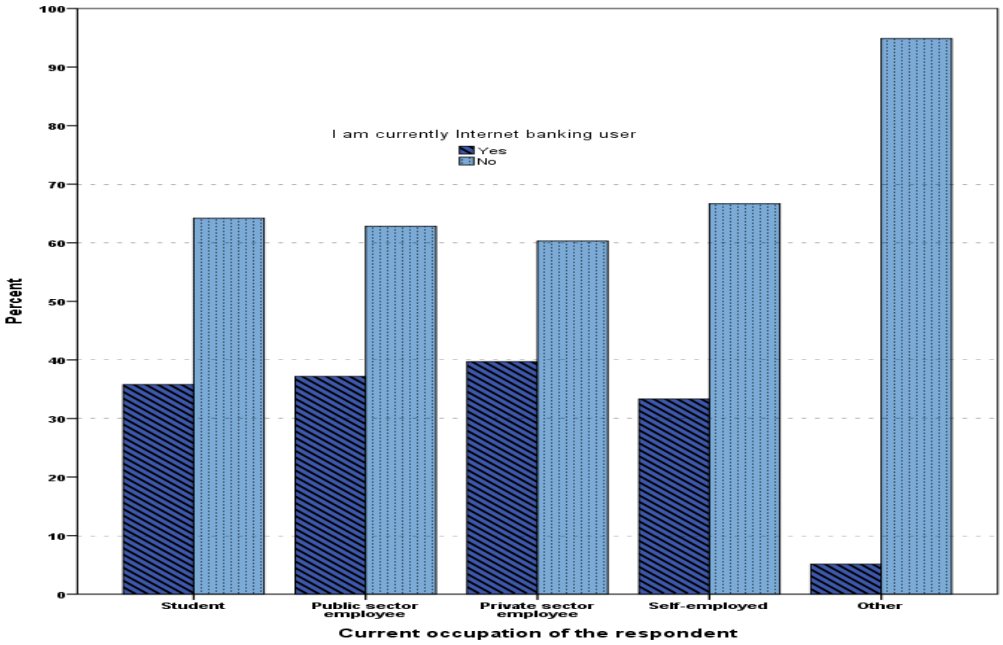
Moreover, the frequency distributions of users and non-users within the same occupation (Figure 4-5 on the next page) show that most respondents in the 'Other' occupation category (e.g. retired people, housewives, and unemployed) were non-users. There are slight differences between the users and non-users in the other four usage categories where the results yielded non-user proportions varying between 60.3% for private sector employees to 64.2% for student respondents. Therefore, it could be concluded that the occupation differences between users and non-users account for variations in the adoption of IB in Jordan.

Chi-square results (χ^2 (4) = 17.093, $p < 0.05$) provide more support for this finding since they indicated significant association between the individual occupation and his/her decision to adopt IB services.

Table 4-11: Occupation Observations for Users and Non-Users

	Users			Non-users			Total	
	Frequency	% Users	% Occupation	Frequency	% Non-Users	% Occupation	Freq.	%
Student	29	18.1	35.8	52	17.2	64.2	81	17.5
Public sector employee	58	36.3	37.2	98	32.3	62.8	156	33.7
Private sector employee	54	33.8	39.7	82	27.1	60.3	136	29.4
Self-employed	17	10.6	33.3	34	11.2	66.7	51	11
Other	2	1.2	5.1	37	12.2	94.9	39	8.4
Total	160	100		303	100		463	100

Figure 4-5: Occupation Distribution among Users and Non-Users



5. Income Observations

Table 4-12 on the next page suggests that while 66.3% of Internet baking users earned 300-800 Jordanian Dinars, the same two income categories (300-500 and 501-800) also account for 70% of the total non-users, reflecting their percentages in the total study's sample (68.7%). Regarding the user status within the same income category, it can be seen from Figure 4-6 on the next page that 69.4% and 64% of the middle-income categories (300-500 and 501-800) were non-users respectively. Furthermore, the majority of low-income level respondents (83%) were non-users compared to only 17% of who were using IB. It was noticeable also that within the 801-1,100 income category, which represents the lower end of the highest income class, 58.3% of the respondents were non-users. Additionally, the high-income earners (more than JD 1,100) were split between users and non-users.

Based on the above discussion, it can be concluded that an association exists between income level and IB usage, with willingness to use such services increasing in tandem with income level. Additionally, the Chi-square results featured in Table 4-13 on page 139 (χ^2 (4) = 15.445, $p < 0.05$) confirm a significant association between the income level and IB usage status.

Table 4-12: Income Observations for Users and Non-Users

	Users			Non-users			Total	
	Frequency	% Users	% Income	Frequency	% Non-Users	% Income	Freq.	%
Less than 300	8	5	17	39	12.9	83	47	10.2
300-500	48	30	30.6	109	36.0	69.4	157	33.9
501-800	58	36.3	36	103	34.0	64	161	34.8
801-1,100	20	12.5	41.7	28	9.2	58.3	48	10.4
More than 1,100	26	16.2	52	24	7.9	48	50	10.8
Total	160	100		303	100		463	100

Figure 4-6: Income Distribution among Users and Non-Users

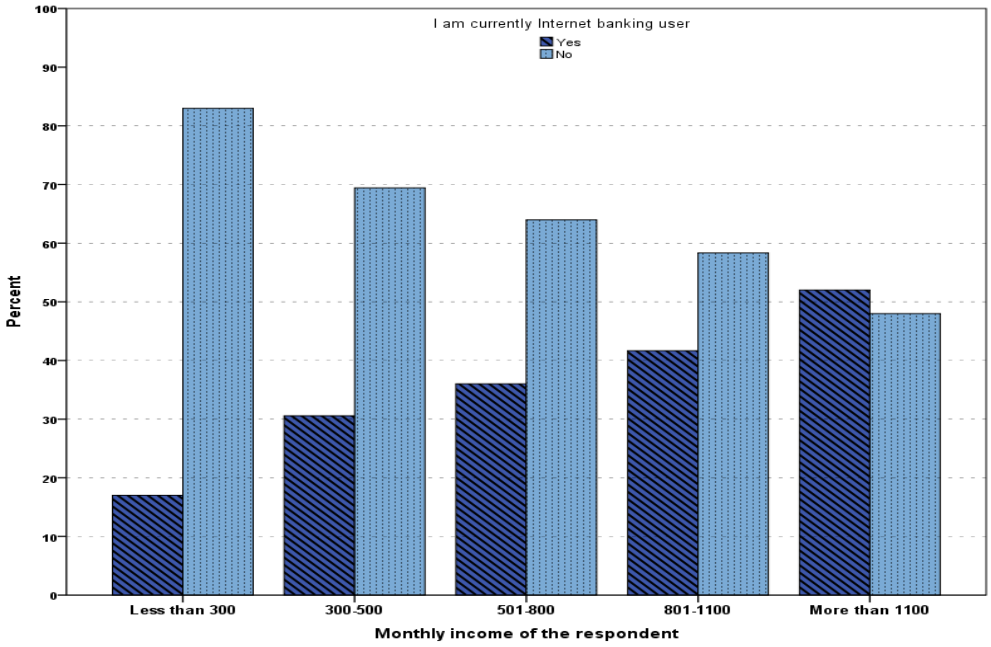


Table 4-13: Expected Frequencies for Users and Non-Users and Results of Chi-square Tests

Demographic Variable		Users Exp. Freq.	Non-users Exp. Freq.	Chi-square	df	Sig.
Gender	Male	84	159	8.646	1	0.003
	Female	76	144			
Age Group	15-20	12.5	23.5	16.347	5	0.006
	21-30	48.7	92.3			
	31-40	53.6	101.4			
	41-50	26.6	50.4			
	51-60	16.9	32.1			
	Over 60*	1.7	3.3			
Education Level	High school	19	36	39.418	5	0.000
	Diploma	19.7	37.3			
	Bachelor	82.3	155.7			
	Master	28	53			
	Doctorate	10.7	20.3			
	Other *	0.3	0.7			
Occupation						
Student		28	53	17.093	4	0.002
Public sector employee		53.9	102.1			
Private sector employee		47	89			
Self-employed		17.6	33.4			
Other		13.5	25.5			
Income Level	Less than 300	16.2	30.8	15.445	4	0.004
	300-500	54.3	102.7			
	501-800	55.6	105.4			
	801-1,100	16.6	31.4			
	More than 1,100	17.3	32.7			

*Sub-categories were excluded from chi-square test as expected frequency < 5

4.6.2 Users and Non-Users Attitudinal Test for Differences

In order to assess the significant differences between IB users and non-users regarding the study's constructs, a series of independent t-tests were performed to compare the average mean scores between the two groups based on their responses to the interval scale questions in the questionnaire. The t-test calculations were based on the average scale scores of each interval scale used in this study, and SPSS 22 was used to compute average scores for items in each of the twelve study constructs (45 individual observable variables) (see Appendix 3A on page 321).

Table 4-14 on the next page reports the average mean scores and standard errors of difference for both users and non-users, and the t-test results including t-statistics (t), degrees of freedom (df), probability values (p), and correlation coefficients (r).

The comparison between the average mean scores of the users and non-users was made on the twelve major variables namely, PU, PEOU, TRB, COMP, PFC, OBSV, OBSR, INV, GVS, IIB, ACC, and IU. Moreover, all statistics reported in Table 4-14 were calculated using SPSS 22 except the values for correlation coefficient (r) which were calculated manually using the following equation based on Field's (2009) recommendations:

$$r = \sqrt{t^2/(t^2 + df)}$$

According to Field (2009), because Pearson's correlation coefficient (r) represents a standardised measure of an observed effect, it is the most commonly used measure of the size of an effect between variables. The effect size measures the strength of the relationship between variables, which in turn highlights the difference between them. Coe (2002) regards effect size as a simple way to understand the difference between two groups and as having many advantages over tests that depend only on statistical significance. He claims that despite the importance of effect size as a measure, it has been long underused by researchers and writers.

Furthermore, when attempting to interpret effect size results, researchers suggest different guidelines. The following were found to be widely used in describing what constitutes a large or small effect size: r = 0.1 indicates a small effect where 1% (r^2 = 0.01) of the variance is explained by it, r = 0.3 is a medium effect and accounts for 9% (r^2 = 0.09) of the total variance occurring, and r = 0.5 (r^2 = 0.25) represents a large effect accounting for 25% of the total variance (Field, 2009; Pallant, 2013).

The analysis of the t-test statistics presented in Table 4-14 reveals that users and non-users of IB in Jordan differed significantly in terms of their attitudes towards all Likert-scale variables ($p < 0.05$). With respect to the PU, the t-test revealed that there was a significant statistical difference between users' (Mavg = 4.36, SE = 0.049) and non-users' (Mavg = 3.73, SE = 0.063) average mean scores $t(459.8) = 7.825$, $p < 0.05$; these results indicated that users, on average, considered IB services to be more productive, quick, beneficial, and effective than did non-users.

The results also showed that the difference in means represented a medium-sized effect r = 0.34 explaining 11.6% of the total variance in PU responses.

Table 4-14: Users and Non-Users Average Mean Scores and t-tests Statistics

	Users (n=160)		Non-users (n=303)		t	df	p	r	r^2
Construct*	Mean	SE	Mean	SE					
PU	4.36	0.049	3.73	0.063	7.825	459.8	0.000	0.34	0.116
PEOU	4.27	0.045	3.44	0.066	10.396	459.7	0.000	0.44	0.194
TRB	4.09	0.056	3.64	0.057	5.708	420.96	0.000	0.27	0.073
COMP	4.20	0.056	3.20	0.07	11.139	456.4	0.000	0.46	0.212
PFC	4.24	0.054	3.61	0.065	7.383	452.7	0.000	0.33	0.109
OBSV	3.32	0.084	2.49	0.057	8.152	304.8	0.000	0.42	0.176
OBSR	4.07	0.062	3.22	0.062	9.638	417.4	0.000	0.43	0.185
INV	3.91	0.071	2.95	0.057	10.483	353.8	0.000	0.49	0.240
GVS	3.77	0.068	3.52	0.056	2.825	363.1	0.005	0.15	0.023
IIB	3.16	0.086	2.44	0.064	6.664	329.2	0.000	0.34	0.116
ACC	4.36	0.051	3.83	0.058	6.929	446.5	0.000	0.31	0.096
IU	4.38	0.043	3.33	0.06	14.183	460.98	0.000	0.55	0.303

* Scores here represent the average mean scores (Mavg) for all measure items in each construct.

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSV**: Observability-visibility, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

The results in Table 4-14 also revealed that the average mean scores of users (Mavg = 4.27, SE = 0.045) and non-users (Mavg = 3.44, SE = 0.066) in respect of PEOU were significantly different, t (459.7) = 10.393, p < 0.05; practically this means that IB users perceived the service easier to learn and understand, and more flexible than did non-IB users. This difference was found to have a medium effect size where r = 0.44, thus representing a substantial effect explaining 19.4% of PEOU total variance.

In terms of TRB, the t-test statistics revealed that Jordanian IB users (Mavg = 4.09, SE = 0.056) placed a higher level of importance on the need to test-drive the service before actually using it than did their non-user counterparts (Mavg= 3.64, SE = 0.057). This result was based on the comparison of the two groups' average mean scores which indicated a significant difference between the responses of users and

non-users on TRB (t (420.96) = 5.708, p < 0.05). However, the effect of this difference was somewhat small as r = 0.27 accounts for only 7.3% of TRB total variance.

Moreover, the comparison of users and non-users on COMP confirmed a statistically significant difference between the average means of the two groups (t (456.4) = 11.139, p < 0.05). In a practical manner that would imply that users (Mavg = 4.20, SE = 0.056) perceived IB to be more suited to their daily lives and work habits, than did non-users (Mavg = 3.20, SE = 0.07). Additionally, the effect size of the difference between the two groups was reported to be at the upper threshold of the medium-sized effect r = 0.46 which in turn means that being user or non-user of IB explained a fair amount of the variance (21.2%) in respondents' scores on the COMP scale.

Analysis of the t-test results in Table 4-14 also showed that, on average, IB users (Mavg = 4.24, SE = 0.054) perceived the overall financial cost involved in conducting IB transactions in Jordan in terms of the required tools, Internet connection, and other operating costs, more acceptable for them than did non-users (Mavg = 3.61, SE = 0.065). This difference was statistically significant; t (452.7) = 7.383, p < 0.05 and was moderately important r = 0.33 explaining about 11% of the total variance in responses on the PFC scale.

It can be seen from Table 4-14 that a statistically significant difference exists between users and non-users in their attitudes towards both dimensions of Observability (OBS), OBSV t (304.8) = 8.152, p <.05 and OBSR t (417.4) = 9.638, p <0.05. This means that IB services provided by banks in Jordan were observed and noticed more by users (Mavg = 3.32, SE = 0.084) than non-users (Mavg = 2.49, SE = 0.057). Additionally, it can be concluded that users (Mavg = 4.07, SE = 0.062) considered IB results clear for them and feel that they are more able to express these results than did non-users (Mavg = 3.22, SE = 0.062). Furthermore, Table 4-14 shows that the effect size in the two cases was close r = 0.42 for OBSV and r = 0.43 for OBSR, and that they both fall within the moderate size classification, explaining 17.6% and 18.5% of the total variance in the two scales respectively.

Likewise, output results shown in Table 4-14 revealed a significant statistical difference t (353.8) = 10.483, p <0.05 between the average mean scores for both users and non-users concerning the INV research variable. In other words, IB users

(Mavg = 3.91, SE = 0.071) identified themselves as more open to, and accepting of new technologies than non-users (Mavg = 2.95, SE = 0.057). It is also shown that effect size had a strong effect r = 0.49 on the variation between the two groups, explaining 24% of the total variance of respondents' scores on INV scale.

With respect to the GVS variable, the independent t-test results showed that even though there was a significant difference between the average mean scores for users (Mavg = 3.77, SE = 0.068) and non-users (Mavg = 3.52, SE = 0.056) t (363.1) = 2.825, p < 0.05), the effect size was r = 0.15, considered somewhat small, explaining only 2% of the total variance of the GVS variable responses. This result would indicate that while IB users (Mavg = 3.77) and non-users (Mavg = 3.52) in Jordan were moderately agreed that the Jordanian government provides satisfactory support for IB applications, the difference in the agreement level between the two groups was not large enough to provide good explanations for the variations in the total scale scores.

Again, Table 4-14 shows a statistically significant difference between users and non-user groups in their average mean scores for both IIB t (329.2) = 6.664, p<0.05 and ACC t (446.5) = 6.929, p<0.05. So despite their moderate level of agreement (Mavg = 3.16, SE = 0.086), IB users reported having received an adequate amount of Information about the benefits of IB and how to use it. However, IB non-users reported less agreement on this (Mavg = 2.44, SE = 0.064) claiming not to have received such information. On the other hand, the clear difference between the two groups was moderately important r = 0.34 which was enough to explain 11.6% of the variance of IIB scale.

Likewise, IB users (Mavg = 4.36, SE = 0.051) agreed on their possession of the necessary access requirements for IB more than did non-users (Mavg = 3.83, SE = 0.058). The effect size between the two groups was reported to be medium r = 0.31 explaining nearly 10% of the total variance of ACC.

Finally, with regard to IU, the output results of the t-tests shown in Table 4-14 indicate a significant difference in average means between users and non-users t (460.98) = 14.183, p<0.05. Accordingly, IB users (Mavg = 4.38, SE = 0.043) displayed a high level of agreement on their intentions to continue using IB services. Moreover, even though non-users (Mavg = 3.33, SE = .06) agreed that they had the intention to start using these services in the future, they still lag behind users in this

matter. It is also obvious from the table that the effect size was very large r = 0.55, indicating an important difference between the two groups in terms of their average mean scores, and it is also clear that this difference was responsible for 30.3% of the total variance of respondents' scores on the IU scale.

In summary, as demonstrated in Table 4-14, significant differences in average mean scores between users and non-users exist for all twelve tested variables ($p < 0.05$). Moreover, in order to understand the importance of the differences between the two groups, the magnitude of the difference, referred to as effect size in these comparisons, was quantified, and this appeared as a medium-sized effect for all except the last variable (IU), which reported a large effect. Furthermore, the differences between the two groups also differed in the amount of variance they explained regarding the scales used in the comparisons. The lowest percentage reported was for the GVS variable (2.3%) where the difference between users and non-users was only slightly detectable, and the highest percentage (30.3%) with the largest magnitude of difference between the two groups was on the IU scale.

4.7 Summary

It has been shown in this chapter that the response rate to the questionnaire was sound at 77.1%, this being accounted for by 463 usable questionnaires for statistical analysis from the original 600 distributed. Summarising the characteristics of the respondents, it can be seen that male and female respondents represented 52.5% and 47.5% respectively of the sample, and that the majority (64%) were within the middle age group (21-40). Furthermore, the sample were well educated. Finally, in terms of IB use, the majority (65.4%) of respondents were non-users, leaving 34.6% who considered themselves as users.

Analysis of the respondents' demographic profiles, and the comparisons between IB users and non-users, revealed several differences between the two groups' attitudes towards IB, occasioned by gender, age, occupation, education level, and income. A series of independent t-tests explored the attitudinal differences between users and non-users and the effect size was calculated in order to provide more understanding of these differences. The following chapter continues the analysis of the quantitative data by discussing the findings of factor analysis and SEM.

Chapter 5: Quantitative Data Presentation and Analysis: Inferential Analysis

5.1 Introduction

This chapter continues the process of quantitative data analysis by presenting the results of the inferential analysis, which includes Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and hypothesis testing using Structural Equation Modelling (SEM). The first section considers the data reduction and factor extraction achieved through EFA, the second reports the findings of CFA and discusses the procedures of the measurement model validation, and the last provides a detailed discussion of the structural model and the testing of the hypothesised causal relationships among the proposed model variables.

5.2 Exploratory Factor Analysis (EFA)

To reduce the number of research variables for easier management, EFA using SPSS 22 was undertaken. This process also allowed for the main dimensions of each construct to be examined to ensure independence among those constructs, and that they were all measuring different attitudes.

5.2.1 Test of Sampling Adequacy and Data Sphericity

Two main concerns exist when deciding the suitability of a particular data set for EFA; sample size, and the pattern of relationships among the variables (Hair et al., 2010). The two statistical tests used were the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, and Bartlett's test of Sphericity. The KMO index usually ranges from zero to one with a minimum value of 0.6 being suggested for a good EFA, but higher values (close to one) indicate better sampling adequacy levels. The significance level for Bartlett's test should be 0.05 or less in order to determine the usefulness of EFA for the data (Field, 2009; Pallant, 2013).

Therefore, prior to conducting EFA, the KMO measure of sampling adequacy, and Bartlett's test of Sphericity were performed to ensure the appropriateness of the data set for EFA. Table 5-1 on the next page reports the results. As the table shows, the KMO measure of sampling adequacy exceeds the minimum acceptable value (0.928) indicating no problem with the sample size. Moreover, Bartlett's test of Sphericity confirmed the significance value as ($p = 0.000$), thus leading to a rejection of the null hypothesis and to the conclusion that an acceptable level of correlation amongst the variables in the data set exists, thus making the data appropriate for

subsequent EFA. Hence, the quantitative data collected from the study sample supported the use of EFA.

Table 5-1: KMO Statistics and Bartlett's Test of Sphericity

KMO Measure of Sampling Adequacy		0.928
Bartlett's Test of Sphericity	Approx. Chi-square	23711.121
	df	990
	Sig.	0.000

5.2.2 Performing EFA

A suitable approach to EFA was then determined. This involved establishing the factor extraction method, factor retention criteria, factor rotation method, and the interpretation of resulted factor loadings. The process was as follows:

- Firstly, the precise factor extraction method was chosen, so that the minimum number of factors that could represent the associations among the set of variables in the best way could be established (Pallant, 2013). According to Roberson et al. (2014), there is no universal extraction method in the social sciences; the best method being that allows the purpose of using factor analysis to be achieved. Principal Component Analysis (PCA), for instance, would be the best method to use when wanting to reduce a large set of items to a more manageable number. Alternatively, if the intention were a scale development, other extracting methods including Unweighted Least Squares, Principal Factors, Generalised Least Squares Image Factoring, Maximum Likelihood Factoring, and Alpha Factoring would be more appropriate. Hence, since the primary reason for performing EFA in this study is data reduction, PCA was used as the primary method of factor extraction.

- Secondly, with regard to factor retention criteria, there are several approaches to the determination of the number of factors which best describe the underlying relationships among the study variables, including Kaiser's criterion, the Cattell's scree test, and Horn's parallel analysis. Among other methods, Kaiser's criterion - also known as the 'eigenvalue-greater than-one' rule - is found to be the most commonly used. According to Pallant (2013), since eigenvalues refer to as the amount of total variance explained by a factor, an eigenvalue of one or more

denotes a significant amount of variation. On the other hand, the Cattell's scree test plots the eigenvalues and then checks where the plot curve changes to become horizontal. The suggestion is to retain all the factors above the elbow of the curve (ibid). Finally, Horn's parallel analysis for retaining factors is based on the comparison between the size of the original eigenvalues and other eigenvalues obtained from a randomly generated data set of the same size. The retained eigenvalues are those that exceed similar values from the random data set (Field, 2009; Hair et al., 2010; Pallant, 2013). Moreover, many researchers recommend that multiple criteria should be employed to determine the most parsimonious set of factors (Field, 2009; Hair et al., 2010; Roberson et al., 2014; Osborne, 2015). Therefore, in this study, Kaiser's criterion and Cattell's scree plot test were both employed to establish the number of retained factors for further analysis.

- Thirdly, as researchers have found that the output resulting from factor analysis are not easy to interpret, they recommend rotating the resulting factors in order to produce results in a simpler form. While there are many rotation methods, they generally fall into two broad categories: orthogonal methods which include (Varimax, Quartimax, and Equamax), and oblique methods which include (Promax and Direct Oblimin). The former approaches represent the case in which the factors are uncorrelated, whereas the latter methods permit the factors to be correlated with one another. In other words, orthogonal rotation methods assume totally independent factors with correlation coefficients among them being zero, whereas oblique methods assume the underlying factors to be related or correlated with each other, showing non-zero correlation coefficients (Field, 2009; Pallant, 2013).

  Traditionally, orthogonal rotation methods have been favoured over oblique methods by researchers as they involve simpler mathematics and produce easy-to-interpret solutions (Costello and Osborne, 2005). However, Costello and Osborne (2005) and Osborne (2015) argue that, in social science contexts where some factor correlation is generally expected, orthogonal rotation will potentially result in less useful solutions. Hence, they suggest using oblique rotations regardless of the underlying relationships among the factors since these methods can accurately model uncorrelated as well as correlated factors.

This argument is also supported by Field (2009) who claims that orthogonal methods are not the best choice when rotating factors extracted from human-respondent data. He claims that orthogonal rotations are probably not successful in social sciences because they cannot handle correlated factors as effectively as can oblique rotations.

Given the present study's use of human respondents who are not isolated from their environment, the possibility of inter-correlations among any set of variables emerges, and as the study's theoretical framework does assume correlation between the study variables, oblique rather than orthogonal rotation approaches are considered. Specifically, Promax - the most commonly used oblique rotation method - was employed to rotate factors produced by principal component extraction.

5.2.3 EFA Results

The EFA employed for the purpose of data reduction involved the elimination of any unrelated items and ensured the hypothesised grouping of the study variables. Since the measurement scales in the study were comprised mainly of individual items that were previously used and validated in different studies in technology acceptance context, the role of EFA was to confirm the groupings made by the researcher, of the 45 measurement items into 12 variables, and to find solutions to cases where such confirmation was not possible.

A) Factor Extraction

PCA with Kaiser's criterion and Cattell's scree test was applied for factor extraction. The first step was to check communalities between measured items in order to identify any problematic ones before proceeding to further analysis. According to Field (2009), communalities represent the multiple correlation between each variable and the factors extracted. Communality thus indicates how much variance of each original variable is explained by the extracted factors. Communality values usually range from zero to one, but higher communalities are more desirable as variables with high values are well represented in the extracted factors, whereas variables with low values are not. Moreover, in samples of more than 250, communalities greater than or equal to 0.6 are considered good enough to ensure

accurate results from Kaiser's criterion test for the number of retained factors (ibid). Communalities can be found in Appendix 5A on page 341.

As seen in Appendix 5A, communalities values varied from 0.552 for OBSV2 variable to 0.956 for IIB1. In addition, it is shown that the extraction values of OBSV1 (0.575) and OBSV2 (0.552) were both below the recommended cut-off value of 0.6. Hence, they were dropped in order to enhance the efficiency and effectiveness of any further analysis. As a result, OBSV was excluded from the original research model, as these items were its only measurement items.

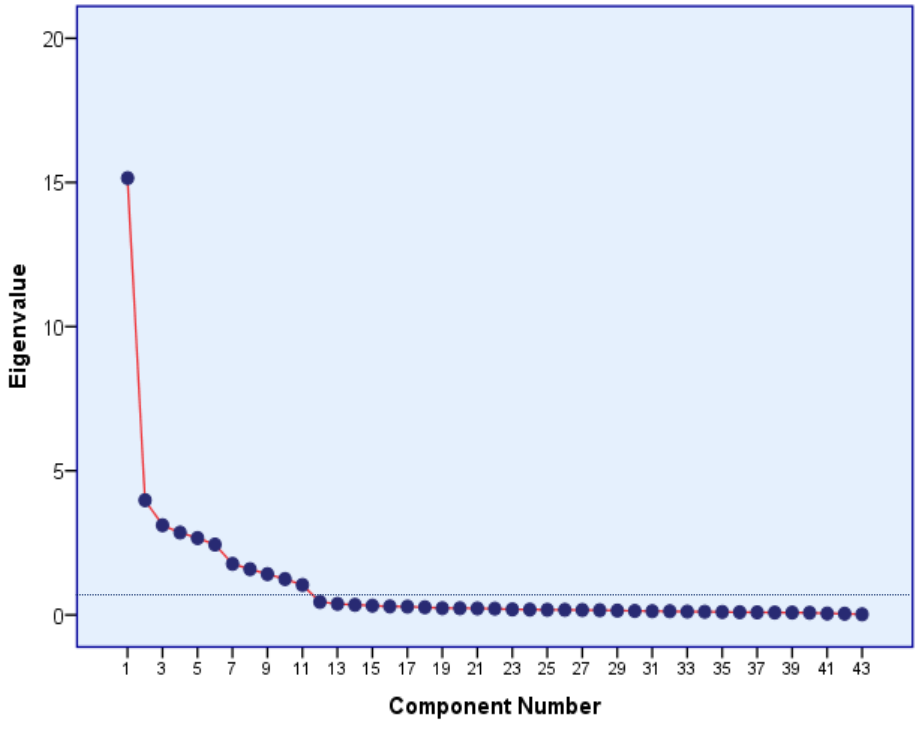
After re-running EFA without OBSV items, an eleven-factor solution was achieved based on eigenvalues greater than one. Table 5-2 on the next page shows these results together with the total explained variance. It can be seen from Table 5-2 that an eleven-factor solution emerged from PCA when applying Kaiser's criterion "eigenvalue-greater-than-one" rule. It is also clear that these eleven factors explained a total of 86.6% of the variance in the dataset, with factor one contributing 35.24% alone and the remaining ten factors varying in contribution from 9.25% for factor two to only 2.42% for factor eleven.

As mentioned, many researchers recommend employing more than one extraction method in order to support their results and produce a clearer picture of the maximum number or factors that should be retained. Therefore, Cattell's scree test plot shown in Figure 5-1 on the next page was drawn in order to confirm the Kaiser's criterion result. The scree plot makes it clear that eleven factors were above the elbow of the plot line, proving that the eleven-factor solution resulting from the 'eigenvalue-greater-than-one' rule earlier was accurate.

Table 5-2: Extracted Factors and Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	15.153	35.239	35.239	15.153	35.239	35.239	9.538
2	3.978	9.251	44.490	3.978	9.251	44.490	10.706
3	3.109	7.230	51.720	3.109	7.230	51.720	6.795
4	2.855	6.639	58.359	2.855	6.639	58.359	6.508
5	2.664	6.195	64.555	2.664	6.195	64.555	3.406
6	2.438	5.671	70.225	2.438	5.671	70.225	4.264
7	1.772	4.120	74.346	1.772	4.120	74.346	5.812
8	1.589	3.695	78.040	1.589	3.695	78.040	7.401
9	1.414	3.289	81.329	1.414	3.289	81.329	5.527
10	1.245	2.895	84.224	1.245	2.895	84.224	10.865
11	1.041	2.421	86.645	1.041	2.421	**86.645**	8.302
12	0.453	1.055	87.700				
13	0.384	0.893	88.592				
14	0.351	0.817	89.409				
15	0.318	0.740	90.149				

Figure 5-1: Scree Plot of Factors Extraction



B) Interpretation of Extracted Factors

Rotating the eleven-factor solution resulting from the PCA makes it easier to interpret EFA results. Hence, in order to discriminate between the extracted factors and to determine which of the forty-three retained variables would load on which of those eleven factors, the Promax rotation method was employed.

Appendix 5B on page 342 shows the pattern matrix and loading scores of each of the forty-three variables on each of the eleven factors. The rotated solution revealed a clear structure where each of the forty-three variables loaded exclusively on only one factor, and all factors were represented by a number of high loadings (not less than 0.8), a clear confirmation that these forty-three variables measured eleven different constructs. Hence, these results confirm the eleven-factor solution as the best choice for representing the hypothesised measurement items of the study, as well as for explaining the variance of the dataset.

Furthermore, according to Graham et al. (2003), in order to reach an accurate interpretation of factor analysis results, it is essential to present factor structure coefficients for all measured variables. They claim that structure coefficients, usually presented in the results output of the structure matrix, do reflect the correlation between variables and the latent factors. Graham et al. (2003) argue that when the latent factors are allowed to correlate, variables that are supposed to measure them also correlate with all factors, even if the pattern parameters of the variables are fixed to zero. Consequently, the failure to report structure coefficients would occasionally lead to interpretation problems especially when the basic assumption is the presence of correlation between the measurement variables.

Therefore, in order to double-check the rotated solution, the structure matrix shown in Appendix 5C on page 343 was carefully examined for any deviations. Upon examination of the structure coefficients, it can be seen that all measurement variables had some correlation with all factors; this result was expected, as the assumption for using Promax rotation in the first place was the existence of such correlation between variables as well as their constructed factors. However, based on the fact that variables should relate more strongly to their own factor than to another factor (Graham et al., 2003; Field, 2009), it was necessary to establish this pattern, and it is obvious that the differences between the loading scores of variables

on their own factor and other latent factors were high enough to accept the factor structure revealed by the pattern matrix.

For example, PU items (PU1, PU2, PU3, PU4, PU5, and PU6) showed correlations of more than 0.3 on four factors (one, two, ten, and eleven), but since these variables scored significantly on their main factor (Factor one) and they were all above 0.9 while scoring less than 0.6 on other factors, they were considered to fit more with Factor one. Therefore, the structure matrix of the rotated solution maintained the eleven-factor solution by verifying that the observed correlations of the variables with the extracted factors supported the interpretation of the original solution.

On the other hand, the component correlation matrix shown in Table 5-3 below was utilised as a means of examining the independence among the retained factors. The component correlation matrix in Table 5-3 shows the strength of relationships between the eleven latent factors. It can be seen that all latent factors were interrelated to some degree and these correlations varied from weak (e.g. 0.022 between Factor four and Factor five) to moderately strong (e.g. 0.571 between Factor one and Factor ten). Overall, based on these correlation coefficients, independency among factors of the present dataset cannot be assumed. Hence, the researcher accepted the fact that these factors were correlated with each other, thereby indicating that the results of the orthogonal rotation should not be trusted, and that the obliquely rotated solution was more useful in this case. Therefore, the early decision to use Promax rotation was statistically supported.

Table 5-3: Component Correlation Matrix for Rotated Eleven-factor Solution

Factor	1	2	3	4	5	6	7	8	9	10	11
1	1.000										
2	0.506	1.000									
3	0.308	0.381	1.000								
4	0.273	0.335	0.284	1.000							
5	0.104	0.126	0.096	0.022	1.000						
6	0.137	0.160	0.150	0.197	0.079	1.000					
7	0.152	0.418	0.185	0.301	0.056	0.178	1.000				
8	0.289	0.491	0.287	0.391	0.076	0.166	0.456	1.000			
9	0.182	0.321	0.202	0.225	0.076	0.323	0.357	0.344	1.000		
10	0.571	0.563	0.515	0.359	0.197	0.352	0.324	0.432	0.404	1.000	
11	0.444	0.483	0.343	0.401	0.149	0.235	0.315	0.406	0.398	0.555	1.000

- Extraction Method is PCA - Rotation method is Promax with Kaiser Normalisation

C) Identification of the Study Factors (Constructs)

Based on the findings of the EFA, eleven of the twelve proposed latent factors (constructs) were retained. Furthermore, the initial grouping of those retained factors was also supported by these findings. Table 5-4 below shows the eleven latent factors and their measurement variables resulting from EFA. Appendix 5D on page 344 provides summaries for each construct characteristic resulting from EFA.

Table 5-4: Study Constructs and their Measurement Variables

Construct	Observed Variable	Construct	Observed Variable
PU	PU1 PU2 PU3 PU4 PU5 PU6	**OBSR**	OBSR1 OBSR2 OBSR3
		INV	INV1 INV2 INV3
PEOU	PEOU1 PEOU2 PEOU3 PEOU4 PEOU5 PEOU6	**GVS**	GVS1 GVS2 GVS3 GVS4
		IIB	IIB1 IIB2 IIB3
TRB	TRB1 TRB2 TRB3 TRB4	**ACC**	ACC1 ACC2 ACC3 ACC4
COMP	COMP1 COMP2 COMP3	**IU**	IU1 IU2 IU3 IU4
PFC	PFC1 PFC2 PFC3		

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability-result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

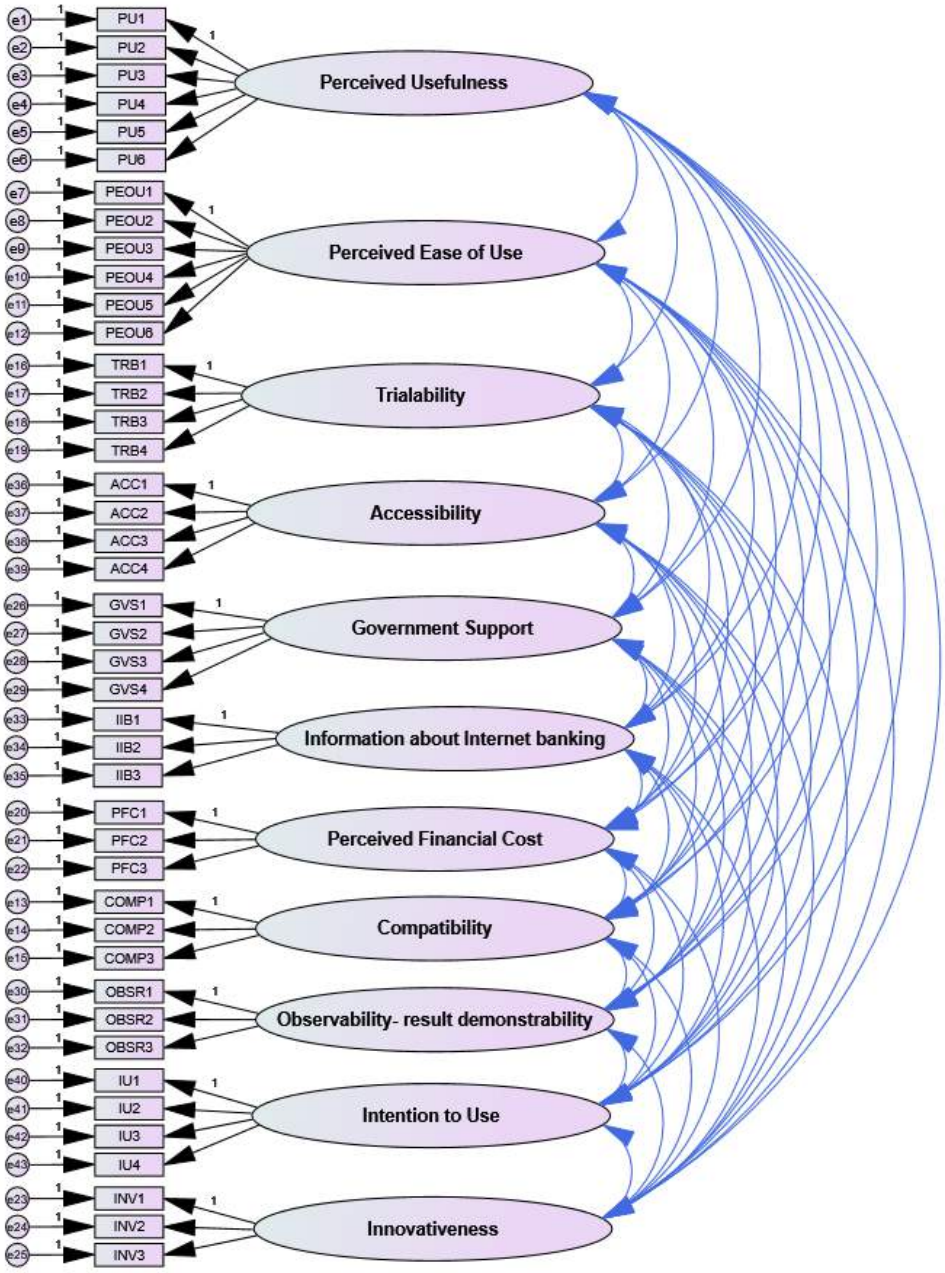
5.3 The Measurement Model: CFA

According to Hair et al. (2010), SEM analysis usually involves testing two types of theoretical models - measurement and structural. The measurement model represents the theoretical knowledge of the underlying structure of a latent variable through specifying the nature of the relationships among the observed variables that construct a particular latent variable. The major interest here is to examine the regression structure paths between the latent variable and its observed variables. On the other hand, the structural model examines the theorised direct and indirect

relationships among the latent variables and it is usual for this to be employed for hypothesis testing purposes.

Following confirmation of the study hypothesised latent variables by the PCA Promax-rotated eleven-factor solution, CFA was employed in order to validate the underlying structure of the main constructs in the study, examine the reliability of the measurement scales, and assess the factorial validity of the theoretical constructs. AMOS 22 software was utilised to create the measurement model shown in Figure 5-2 below based on the EFA findings.

Figure 5-2: The Original Measurement Model



5.3.1 The Measurement Model Evaluation: Goodness-of-Fit

According to Perry et al. (2015), the most important part in conducting CFA is to learn the extent to which the measurement model fits the empirical data. Statistically, a measurement model is said to fit the observed data when its estimated covariance matrix is equivalent to the covariance matrix of the sample data (Cheung and Rensvold, 2002; Schermelleh-Engel et al., 2003). Schermelleh-Engel et al. (2003) indicate that since there are no clear guidelines in the literature for assessing structural equation models, a multiple criteria approach should be adopted instead of depending on a single-straightforward indicator.

The Chi-square (χ^2) test is the most widely used measure of structural equation model appropriateness (Cheung and Rensvold, 2002; Hair et al., 2010; Byrne, 2013). Usually, a good model fit is established if the p-value associated with (χ^2) is higher than 0.05, which leads to accepting the null hypothesis stating that the estimated covariance matrix is equivalent to the observed covariance matrix (no different exists between the two matrices) (Cheung and Rensvold, 2002; Hair et al., 2010; Kenny, 2011; Markus, 2012).

However, several researchers have reported that the Chi-square (χ^2) test is not considered a robust indicator of the model goodness-of-fit due to its high sensitivity to the sample size. For example, it is found that in large samples the probability of rejecting the null hypothesis increases even though the model covariance matrix and the sample covariance matrix are equivalent (Schermelleh-Engel et al., 2003; Hair et al., 2010). It is also found that the Chi-square (χ^2) test is very sensitive to the multivariate normality assumption which is not perfectly met in most practical research studies (Cheung and Rensvold, 2002; Schermelleh-Engel et al., 2003; Byrne, 2013). Attempting to overcome this problem, Jöreskog and Sörbom (1986) suggest using a normed (also known as relative) (χ^2) test rather than the conventional Chi-square (χ^2) significance test. To do that, they recommend comparing (χ^2) value with the number of degrees of freedom associated with it. They propose, the smaller the ratio (χ^2 /df) the better is the goodness-of-fit for the model.

Moreover, several other goodness-of-fit measures have been developed to overcome the shortcomings associated with Chi-square (χ^2). These indices generally fall into three major categories: overall model fit measures, model

comparisons indices, and model parsimony indices (Kenny, 2011; Byrne, 2013; Hair et al., 2010; Hu and Bentler, 1999).

Overall model fit measures (also known as absolute fit indices) assess how well the model reproduces the empirical data. As in the Chi-square (χ^2) test, these indices are based on how close the sample covariance matrix is to the estimated model covariance matrix. Examples of overall fit indices include Standardised Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR), and Goodness-of-Fit Index (GFI), and Adjusted Goodness-of-Fit Index (AGFI) (Schermelleh-Engel et al., 2003; Hooper et al., 2008; Hair et al., 2010).

Model comparison indices (also known as incremental indices) compare the fit of a given model to the fit of another baseline model that assumes uncorrelated measurement variables, where all factor loadings scores are fixed to one, and all errors values are fixed to zero. Examples of incremental indices include, Comparative Fit Index (CFI), Normed Fit Index (NFI), and Non-Normed Fit Index (NNFI) which is also known as the Tucker-Lewis Index (TLI) (Schermelleh-Engel et al., 2003; Kenny, 2011; Byrne, 2013).

Model parsimony indices are considered to be an important criterion in determining structural equation model goodness-of-fit as they provide information about which model is the best among a number of alternatives. Examples of parsimony indices include: Parsimony Normed Fit Index (PNFI), Parsimony Goodness-of-Fit Index (PGFI), Akaike Information Criterion (AIC), Consistent AIC (CAIC), and Expected Cross-Validation Index (ECVI) (Schermelleh-Engel et al., 2003; Hooper et al., 2008; Hair et al., 2010; Kenny, 2011; Byrne, 2013).

As mentioned earlier, the absence of commonly agreed guidelines for what is considered an adequate goodness-of-fit situation makes it difficult to identify the acceptable values for various previous model fit indices. However, ‘Rules of Thumb’ have been developed to provide researchers with cut-off criteria when dealing with structural equation models’ validation. Table 5-5 on the next page specifics these ‘rule-of-thumb’ criteria for a structural equation model fit.

Table 5-5: 'Rules-of-Thumb' for Measurement and Structural Models Fit Indices

Goodness-of-Fit Index		Good Fit Cut-Off Value*
Overall model fit (Absolute)	Chi-square (χ^2) statistic	(p-value > 0.05)
	Normed Chi-square (χ^2)	$0 \leq \chi^2/df \leq 2$
	RMSEA	≤ 0.05
	Associated *p*-close	≥ 0.5
	SRMR	≤ 0.05
	RMR	≤ 0.05
	GFI	≥ 0.90
	AGFI	≥ 0.90
Model comparisons (Incremental)	NFI	≥ 0.90
	NNFI	≥ 0.95
	CFI	≥ 0.95
Model parsimony**	ECVI	Smaller values are better
	AIC	Smaller values are better
	CAIC	Smaller values are better
	PNFI	Higher values are better
	PGFI	Higher values are better

*These values were based on recommendations from Jöreskog and Sörbom (1986); Hu and Bentler (1999); Schermelleh-Engel et al. (2003); Hooper et al. (2008); Hair et al. (2010); Kenny (2011); Byrne (2013).

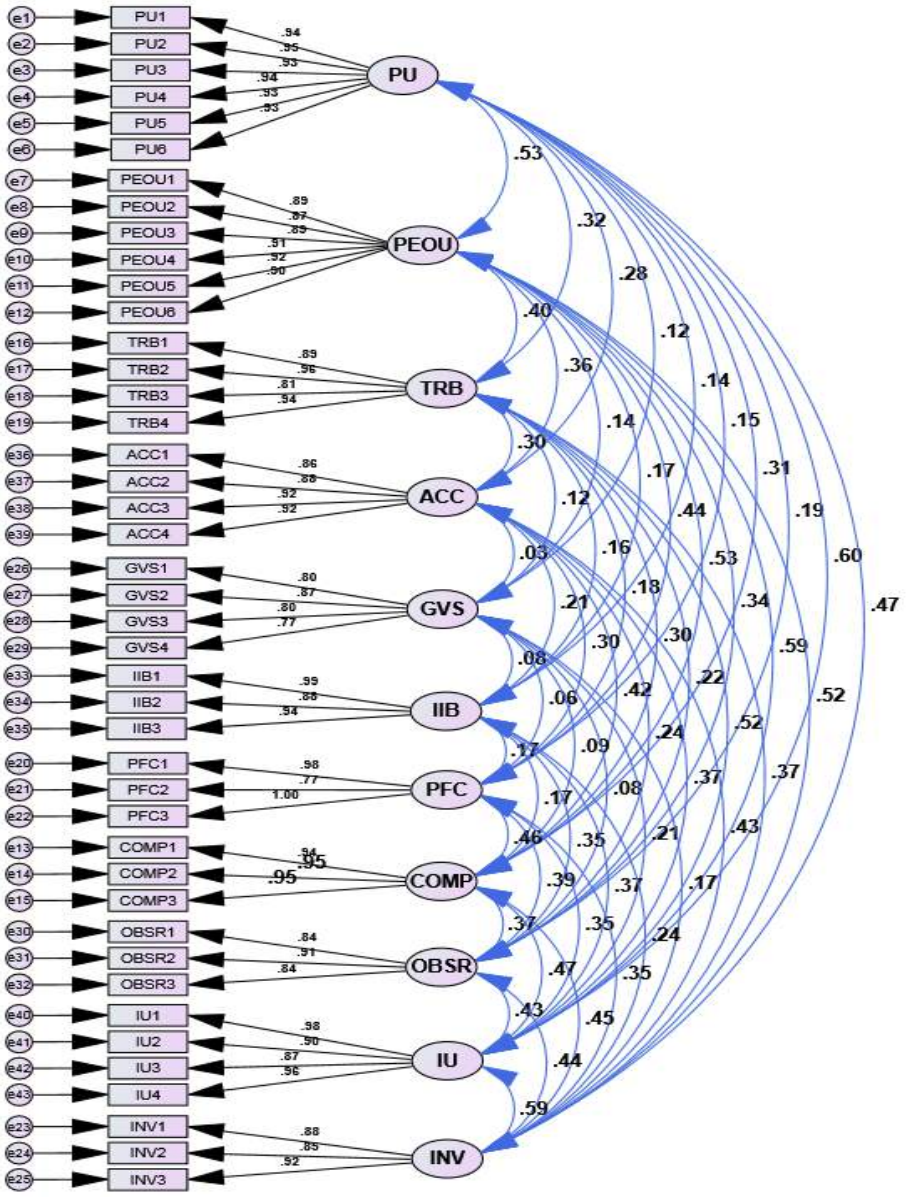
** In the case of choosing among two or more different models.

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

However, Hooper et al. (2008) point out that it is not necessary to report all the above indices in order to prove structural equation model adequacy. Therefore, after identifying the different goodness-of-fit criteria, the next step was to determine which of the criteria to report in this study. In this respect, it was decided not to use model parsimony indices in the evaluation of both measurement and structural models because the validation process was mainly based on a single estimated model (the default Model) in each case, and was not involved in choosing among a number of alternative models. Therefore, only absolute and incremental fit indices are reported for model evaluation purposes. In this regard, Hair et al. (2010) suggest that including at least one fit index from each index category (absolute and incremental) would be enough to assess a particular model fit. However, since the researcher believes that different indices reflect different aspects of goodness-of-fit for the model under consideration, and in an attempt to provide more accurate model validation, it was decided to examine all indices in the above two categories.

Subsequently, to test the measurement model, CFA through AMOS 22 was conducted using the Maximum Likelihood (ML) method, which is the most widely used method for parameters estimation in SEM (Schermelleh-Engel et al., 2003). Figure 5-3 below shows the output path diagram of the CFA first-run, and is followed by the overall goodness-of-fit statistics in Table 5-6 on the next page. The full model-fit summary for the first-run of CFA appears in Appendix 5E on page 347.

Figure 5-3: CFA Output Path Diagram (first-run)



PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

It can be seen from Table 5-6 that while most fit indices indicated a satisfactory level of model adequacy, three showed the opposite, these being the Chi-square (χ^2) test

p-value, GFI, and AGFI. Specifically, the Chi-square statistic (χ^2-df 805, n = 463) = 1,232.52 and p = 0.00 was reported as significant, inferring a bad model fit. However, this result was expected since the Chi-square (χ^2) test for statistical significance is sensitive to sample size which means that for a large sample (n> 200), the Chi-square (χ^2) statistic usually reports a bad model fit and leads to rejection of a null hypothesis. Therefore, as mentioned earlier in this section, the Chi-square (χ^2) statistical significance level was not applicable for the SEM model validation process in the present study. On the other hand, the unacceptable values of GFI and AGFI suggested that there was a room for further model adjustments in order to achieve a good model.

Table 5-6: Measurement Model Goodness-of-Fit Indices (CFA first-run)

Fit Index		Obtained	Cut-Off	Comment
Absolute	Chi-square (χ^2)	1232.52	$0 \leq \chi^2 \leq$ 2df	Acceptable
	p-value	0.000	> 0.05	Unsatisfactory
	Normed Chi-square (χ^2)	1.531	$0 \leq \chi^2/df \leq 2$	Acceptable
	RMSEA	0.034	≤ 0.05	Acceptable
	Associated *p*-close	1.00	≥ 0.5	Acceptable
	SRMR	0.028	≤ 0.05	Acceptable
	RMR	0.035	≤ 0.05	Acceptable
	GFI	0.892	≥ 0.90	Unsatisfactory
	AGFI	0.874	≥ 0.90	Unsatisfactory
Incremental	NFI	0.948	≥ 0.90	Acceptable
	NNFI (TLI)	0.981	≥ 0.95	Acceptable
	CFI	0.981	≥ 0.95	Acceptable

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

5.3.2 The Measurement Model Enhancement

To improve the measurement model goodness-of-fit, several modifications were introduced to the original model shown in Figure 5-2 on page 155. The following paragraphs provide more details about the procedures applied for those adjustments, which were based on guidelines from Schermelleh-Engel et al. (2003), Hooper et al. (2008), Hair et al. (2010), and Byrne (2013):

- Standardised Regression Weights (SRW): known as factor loadings in EFA, these regression weights represent the correlation between the observed and

latent variables. These weights are recommended to be above 0.5, but higher values (close to one) are much better. Any measurement variables less than 0.5 would be considered for elimination due to the weak correlation with their latent variable.

- Squared Multiple Correlations (SMC): these values represent the percentage of variance in the latent variable that can be explained by each individual observed variable. While values above 0.5 are considered acceptable, higher values (close to one) are more favourable.
- Standardised Residuals (SR) matrix: since standardised residuals represent the differences between the data covariance matrix and the model-estimated covariance, observed variables with high-standardised residuals are considered a poor fit in the model. A good model should generate standardised residuals close to zero. Therefore, standardised residuals of more than +2.56 or less than -2.56 are usually indicators to determine the causes of the model misfit.
- Modification Indices (MI): these indices indicate the effect of freeing pre-fixed parameters on Chi-square (χ^2). Therefore, checking these values would help the researcher to determine which path should be added to the model in order to decrease the Chi-square (χ^2) statistic, which in turn improves the model fit. Large modification indices (usually more than 6.63) determine which parameters should be set free in order to achieve better model suitability. A common practice in this regard is to correlate parameter errors that are part of the same factor. Moreover, parameters that show high covariance between their errors and at the same time have high regression weights, are candidate for deletion.

Accordingly, the SEM output results were examined carefully in order to identify any room for further improvements. Firstly, a close inspection of the SRW revealed that all values were above 0.75, which indicates a very good correlation between the individual observed variables and their latent variables. Consequently, no improvements were suggested by this step. Appendix 5F on page 348 presents these SRWs.

Secondly, an inspection of the SMC shown in Appendix 5G on page 349 revealed all values to be over the recommended threshold of 0.5 indicating that a

considerable percentage of explained variance by the individual observed variables was achieved. Again, the SMCs suggested no indication for any further enhancement options.

Thirdly, a careful review of the SR matrix shown in Appendix 5H on page 350 provided the first clue for model improvement. This step disclosed an overestimated (negative residuals) relationship between GVS4 and TRB4 in the model where SR was -2.8 beyond the acceptable threshold of ± 2.56. A careful check of the same table suggested that the model also overestimated most GVS4 associations with other observed variables making GVS4 the best option for deletion. For example, with TRB3 (SR = -2.3), with TRB2 (SR = -1.9), TRB1 (SR = -1.7), and with PEOU5 (SR = -1.6). Accordingly, due to its misfit with the model, it was decided to drop GVS4 from the measurement model.

Fourthly, an inspection of MI presented in Table 5-7 below showed several large values that would be useful in enhancing the measurement model goodness-of-fit.

Table 5-7: Modification Indices for CFA First-run

Covariances			Regression Weights		
Path		MI	Path		MI
e42	↔ IU	18.425	IU3	← PEOU	10.151
e41	↔ e42	81.801	IU3	← IU2	14.887
e40	↔ e42	17.477	IU3	← INV2	11.388
e26	↔ e29	10.444	IU3	← TRB3	12.213
e24	↔ e42	11.719	IU3	← TRB2	10.151
e11	↔ e12	13.116	IU3	← PEOU4	11.248
e8	↔ e11	14.537	IU3	← PEOU3	10.793
e7	↔ e8	16.847	IU2	← IU3	18.67
e4	↔ e5	11.373	GVS4	← TRB	14.928
e3	↔ e5	42.907	GVS4	← TRB4	18.418

PEOU: Perceived Ease of Use, **TRB**: Trialability, **INV**: Innovativeness, **GVS**: Government Support, **IU**: Intention to Use.

Table 5-7 indicates that IU3 and its related error (e42) show a high covariance and regression weight with other model parameters. For example, MI results showed that the relationship between IU3 and IU2 should be relaxed in order to improve the

model estimations. Nevertheless, as co-varying the observed individual variables is not an option in SEM it was decided to consider the deletion of the problematic IU3.

On the other hand, in respect of MI, the covariance between e41 and e42 was 81.801% suggesting that at least 81.801 of the change in Chi-square (χ^2) could be reduced by relaxing (freeing) the two errors covariance. However, because of the decision for IU3 deletion (e42 is associated with IU3), this index was skipped. For the same reason, MI covariance of e40 with e42, were also skipped. Another large covariance MI was between e3 and e5 suggesting that freeing the covariance between e3 and e5 would reduce the change of Chi-square (χ^2) by 42.907% at least. Based on that, it was decided to co-vary e3 and e5 for the second CFA run. For other modification indices, MI for the covariance between e26 and e29, and e 24 and e42 were ignored since GVS4 and IU3, which were associated with e29 and e42, were dropped. Additionally, it was decided to co-vary the remaining errors with high covariance MI: e11 with e12, e8 with e11, e7 with e8, and e4 with e5.

In summary, the following modifications were made in order to enhance the measurement model goodness-of-fit:

- Deletion of GVS4 based on SR analysis.
- Deletion of IU3 based on MI analysis.
- Covariance of seven error terms as follows: (e3 with e5), (e4 with e5), (e7 with e8), (e8 with e11), and (e11 with e12) based on MI analysis.

After introducing the above model modifications, a second CFA run was made. Table 5-8 on the next page shows the overall goodness-of-fit statistics that resulted from the second-run of CFA and Figure 5-4 on page 165 shows the related output path diagram. The full model-fit summary for the second-run of CFA can be found in Appendix 5I on page 351.

It can be seen from Table 5-8 that introducing the above modifications improved the overall goodness-of-fit of the model to an acceptable level. Therefore, since the revised model was confirmed to fit the empirical data adequately, it was decided that no further modification was necessary.

Table 5-8: Measurement Model Goodness-of-Fit Indices (CFA second-run)

Fit Index		Obtained	Cut-Off	Comment
Absolute	Chi-square (χ^2)	880.921	$0 \leq \chi^2 \leq 2df$	Acceptable
	Normed Chi-square (χ^2)	1.225	$0 \leq \chi^2/df \leq 2$	Acceptable
	RMSEA	0.022	≤ 0.05	Acceptable
	Associated *p*-close	1.00	≥ 0.5	Acceptable
	SRMR	0.026	≤ 0.05	Acceptable
	RMR	0.032	≤ 0.05	Acceptable
	GFI	0.918	≥ 0.90	Acceptable
	AGFI	0.902	≥ 0.90	Acceptable
Incremental	NFI	0.961	≥ 0.90	Acceptable
	NNFI (TLI)	0.991	≥ 0.95	Acceptable
	CFI	0.993	≥ 0.95	Acceptable

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

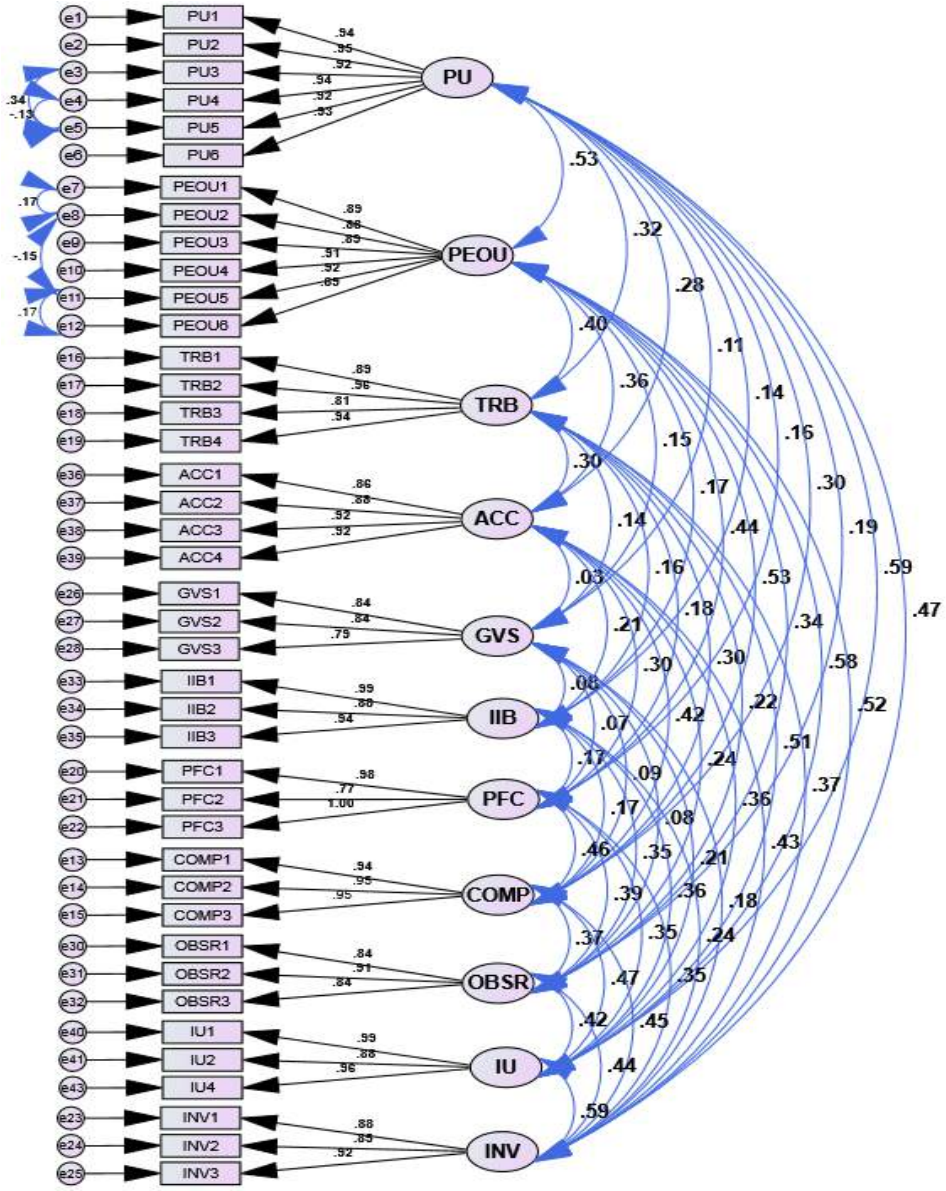
5.3.3 The Measurement Model Evaluation: Reliability Assessment

After establishing the goodness-of-fit for the measurement model, the next step was to assess the composite reliabilities of the model constructs. Composite Reliability (CR) resulting from using SEM is considered to provide better reliability estimation than that by using Cronbach's alpha coefficient (Peterson and Kim, 2013). Therefore, introducing CR in this study was a means of providing another reliability test to judge the accuracy of the results obtained from Cronbach's alpha coefficient test. The following formula proposed by Fornell and Larcker (1981), was applied to calculate the CR for all model constructs:

$$CR = \frac{(\sum_{i=1}^{n} \lambda_i)^2}{(\sum_{i=1}^{n} \lambda_i)^2 + (\sum_{i=1}^{n} \delta_i)}$$

- Where λ represents the standardised regression weight , and $'\delta$ represents the error variance .

Figure 5-4: CFA Output Path Diagram (second-run)



PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability-result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Table 5-9 on the next page presents the results of CR for all study constructs, indicating that all constructs showed high CR coefficients that were all above the cut-off point of 0.7, thereby indicating adequate internal consistency. It can be seen from Table 5-9 that the reliability estimations acknowledged high coefficient values ranging from 0.865 for the GVS construct to 0.976 for the PU construct.

Table 5-9: Composite Reliability Results

Construct	Items	CR
Perceived Usefulness	6	0.976
Perceived Ease of Use	6	0.961
Trialability	4	0.945
Compatibility	3	0.962
Perceived Financial Cost	3	0.944
Observability- result demonstrability	3	0.898
Innovativeness	3	0.918
Government Support	3	0.865
Information about Internet banking	3	0.959
Accessibility	4	0.942
Intention to Use	3	0.962

5.3.4 The Measurement Model Evaluation: Construct Validity

The next logical step at this point was to determine the extent to which the observed variables were actually measuring those associated latent variables that they were supposed to measure, which is known as construct validity. According to Hair et al. (2010), construct validity can be assessed through three different types of validity: convergent, discriminant, and nomological.

A) Assessment of Convergent Validly

Convergent validity is the extent to which the observed variables comprising a particular scale correlate with one another. In order to establish convergent validity, the inter-correlations for all items comprising a given construct should be high enough to show that these items are really related to the same construct (Hair et al., 2010).

In SEM, convergent validity is estimated by Standardised Regression Weights (SRW), Composite Reliability (CR), and average variance extracted (AVE). In order to report convergent validity, the recommended values for each of them should be as follows; SRW >0.7, CR >0.7, and AVE >0.5 (Hair et al., 2010). Although SRW were provided by AMOS 22 output as presented in Table 5-10 on the next page, CR and AVE were not, and were therefore, calculated manually. Moreover, since CR estimations were calculated in the previous section, the AVE for each construct was calculated using the following formula:

$$AVE = \frac{\sum_{i=1}^{n} \lambda_i^2}{n}$$

-Where λ represents the standardised regression weight , and n is the total number of observed variables (Fornell and Larcker, 1981).

Table 5-11 on the next page displays the calculated AVE for all constructs. A close examination of Tables 5-9, 5-10, and 5-11 reveals that the lowest SRW was 0.771 for PFC2 which is above the minimum cut-off point of 0.7, that all CRs were higher than 0.8, and the lowest AVE value was 0.681 for GVS. These results suggest a high level of convergent validity for all latent variables in the study's measurement model.

Table 5-10: SRW for Observed Variables (CFA second-run)

Observed Variable	Latent Variable	SRW Estimate	Observed Variable	Latent Variable	SRW Estimate
PU1	PU	0.939	OBSR1	OBSR	0.836
PU2	PU	0.953	OBSR2	OBSR	0.913
PU3	PU	0.917	OBSR3	OBSR	0.839
PU4	PU	0.942	INV1	INV	0.884
PU5	PU	0.924	INV2	INV	0.854
PU6	PU	0.932	INV3	INV	0.924
PEOU1	PEOU	0.888	GVS1	GVS	0.838
PEOU2	PEOU	0.877	GVS2	GVS	0.844
PEOU3	PEOU	0.892	GVS3	GVS	0.793
PEOU4	PEOU	0.913	IIB1	IIB	0.994
PEOU5	PEOU	0.919	IIB2	IIB	0.883
PEOU6	PEOU	0.89	IIB3	IIB	0.943
TRB1	TRB	0.889	ACC1	ACC	0.856
TRB2	TRB	0.956	ACC2	ACC	0.883
TRB3	TRB	0.812	ACC3	ACC	0.92
TRB4	TRB	0.938	ACC4	ACC	0.924
COMP1	COMP	0.942	IU1	IU	0.986
COMP2	COMP	0.947	IU2	IU	0.883
COMP3	COMP	0.948	IU4	IU	0.963
PFC1	PFC	0.981			
PFC2	PFC	**0.771**			
PFC3	PFC	0.998			

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability-result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Table 5-11: AVE Results

Construct	AVE
Perceived Usefulness	0.873
Perceived Ease of Use	0.804
Trialability	0.811
Compatibility	0.894
Perceived Financial Cost	0.851
Observability- result demonstrability	0.746
Innovativeness	0.788
Government Support	0.681
Information about Internet banking	0.886
Accessibility	0.803
Intention to Use	0.893

B) Assessment of Discriminant Validity

Discriminant validity (also referred to as divergent validity) is the extent to which the observed variables (measured items) supposed to measure a certain latent variable (construct) are distinct from other measures that are designed to measure another construct (Hair et al., 2010). Discriminant validity requires that two sets of measure items intended to measure two distinct constructs to be not correlated (ibid).

In the present study, discriminant validity of the constructs was assessed by comparing the AVE of each construct with squared inter-construct correlations for that construct. The construct is said to demonstrate discriminant validity if the inter-construct correlations do not exceed 0.85 and the AVE results are higher than squared inter-construct correlations for the same construct (ibid).

Table 5-12 below presents the discriminant validity results. The diagonal elements represent AVE values for each construct, the below-diagonal elements are inter-construct correlations, and above-diagonal elements are squared inter-construct correlations. The values in Table 5-12 suggest that the inter-construct correlation coefficients were all below the cut-off point of 0.85. Moreover, all AVE values were larger than the corresponding squared inter-construct correlations. Hence, the CFA results provide evidence of discriminant validity for all study constructs.

Table 5-12: Inter-construct Correlations, Squared Inter-Construct Correlations, and AVE Statistics

Construct	PU	PEOU	TRB	COMP	PFC	OBSR	INV	GVS	IIB	ACC	IU
PU	0.873	0.283	0.100	0.093	0.024	0.035	0.220	0.013	0.021	0.080	0.346
PEOU	0.532	0.804	0.156	0.276	0.193	0.117	0.268	0.024	0.029	0.127	0.334
TRB	0.316	0.395	0.811	0.091	0.034	0.047	0.135	0.020	0.025	0.087	0.263
COMP	0.305	0.525	0.302	0.894	0.214	0.138	0.200	0.008	0.030	0.178	0.218
PFC	0.155	0.439	0.184	0.463	0.851	0.150	0.120	0.006	0.030	0.090	0.125
OBSR	0.187	0.342	0.217	0.371	0.387	0.746	0.189	0.006	0.119	0.057	0.178
INV	0.469	0.518	0.368	0.447	0.346	0.435	0788	0.031	0.058	0.181	0.347
GVS	0.114	0.155	0.142	0.091	0.075	0.079	0.176	0.681	0.007	0.001	0.045
IIB	0.145	0.170	0.157	0.172	0.172	0.345	0.241	0.082	0.886	0.043	0.130
ACC	0.283	0.357	0.295	0.422	0.300	0.239	0.426	0.031	0.208	0.803	0.132
IU	0.588	0.578	0.513	0.467	0.354	0.422	0.589	0.212	0.361	0.363	0.893

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

C) Assessment of Nomological Validity

Nomological validity is usually tested by assessing whether the correlations between the measurement model's constructs make sense (Hair et al., 2010).

Based on the previous IB adoption literature, the measurement model constructs in this study should be positively related in order to demonstrate nomological validity. Appendix 5J on page 352 presents construct correlations, critical ratios, and the corresponding significant level for the eleven-construct measurement model. It can be seen that all correlations were positive. Overall, these correlation results were consistent with theoretical expectations and thus, provide support for the nomological validity of constructs in the measurement model.

5.3.5 Common Method Bias (CMB)

According to Lindell and Whitney (2001), self-reported social studies are usually vulnerable to the inflation of correlations caused by common method bias (CMB). Since these studies usually use survey questionnaires to collect data from participants in specific period of time (cross-sectional), a regular measurement error and inflated estimates of the actual relationship among theoretical factors can be

caused by CMB (Podsakoff et al., 2003; Malhotra et al., 2006; Spector and Brannick, 2010).

According to Podsakoff et al. (2003) CMB can arise mainly from four broad sources, common respondent effects, item characteristic effects, item context effects, and measurement context effects:

1. Common respondent effects, which refer to any artificial covariance between the predictor and criterion variable produced by the fact that the respondent providing the measure of these variables is the same. Examples of these effects would be the tendency of respondents to attempt to keep consistency in their responses to similar questions (Consistency motif), the tendency of respondents to present themselves in a favourable way, regardless of their actual feelings about an area or topic (Social desirability), and the tendency of respondents to view themselves and the world in generally negative or positive terms (Mood state).

2. Item characteristic effects, which refer to any artificial covariance that is caused by the influence or interpretation that a respondent might assign to an item because of that item specific characteristics. Examples of such effects include, items written in a way to reflect more socially desirable attitudes, behaviours, or perceptions (Item social desirability), items may convey hidden cues concerning to how to respond to them (Item demand characteristics), and items that are ambiguous where respondents respond to them randomly or systematically using their own heuristic (Item ambiguity).

3. Item context effects, which refer to any interpretation that a respondent might assign to an item because of its relation to the other items in the instrument. Examples of such effects include, the place of the criterion variable on the questionnaire can make that variable more noticeable to the respondent and imply a causal relationship with other variables (Item priming effects), the first set of questions on the questionnaire encourage a mood for responding to the rest of the questionnaire (Context-induced mood), and items from different constructs that are grouped together may decrease intra-construct correlations and increase inter-construct correlations (Intermixing effects).

4. Measurement context effects, which refer to any artificial covariation resulted from the context in which the measures are obtained. Examples of such effects

include, measures of different constructs measured at the same point in time, in the same location, and with the same instrument may produce artificial covariance independent of the content of the constructs themselves.

Several statistical remedies have been discussed in the literature and tested in this study to detect and control any potential CMB. According to Eichhorn (2014), the three frequently used techniques to estimate common method bias are Harman's Single Factor, Common Latent Factor, and Common Marker Variable.

1. Harman's Single Factor technique uses exploratory factor analysis where all measured variables are loaded onto a single factor and constrained without rotating the resulted factor solution. Evidence for common method bias exists when this single latent factor explains more than 50% of the variance.

2. Common Latent Factor technique introduces a new common latent variable that all measured variables are related to it, those paths are constrained to be equal and the variance of the common factor is constrained to be 1. The common variance is estimated as the square of the common factor of each path before standardization. The common heuristic is to set the threshold to 50%.

3. Common Marker Variable technique allows Items to be loaded on their theoretical constructs, as well as on a latent method factor that has its own measurement components, and the significance of the structural parameters is examined both with and without the latent methods factor (Marker) in the model. The latent methods factor in this case is usually assessed by a new measure that is assumed to represent common methods bias. The common variance in is the square of the new factor of each path before standardization. Again, the common heuristic is to set the threshold to 50%.

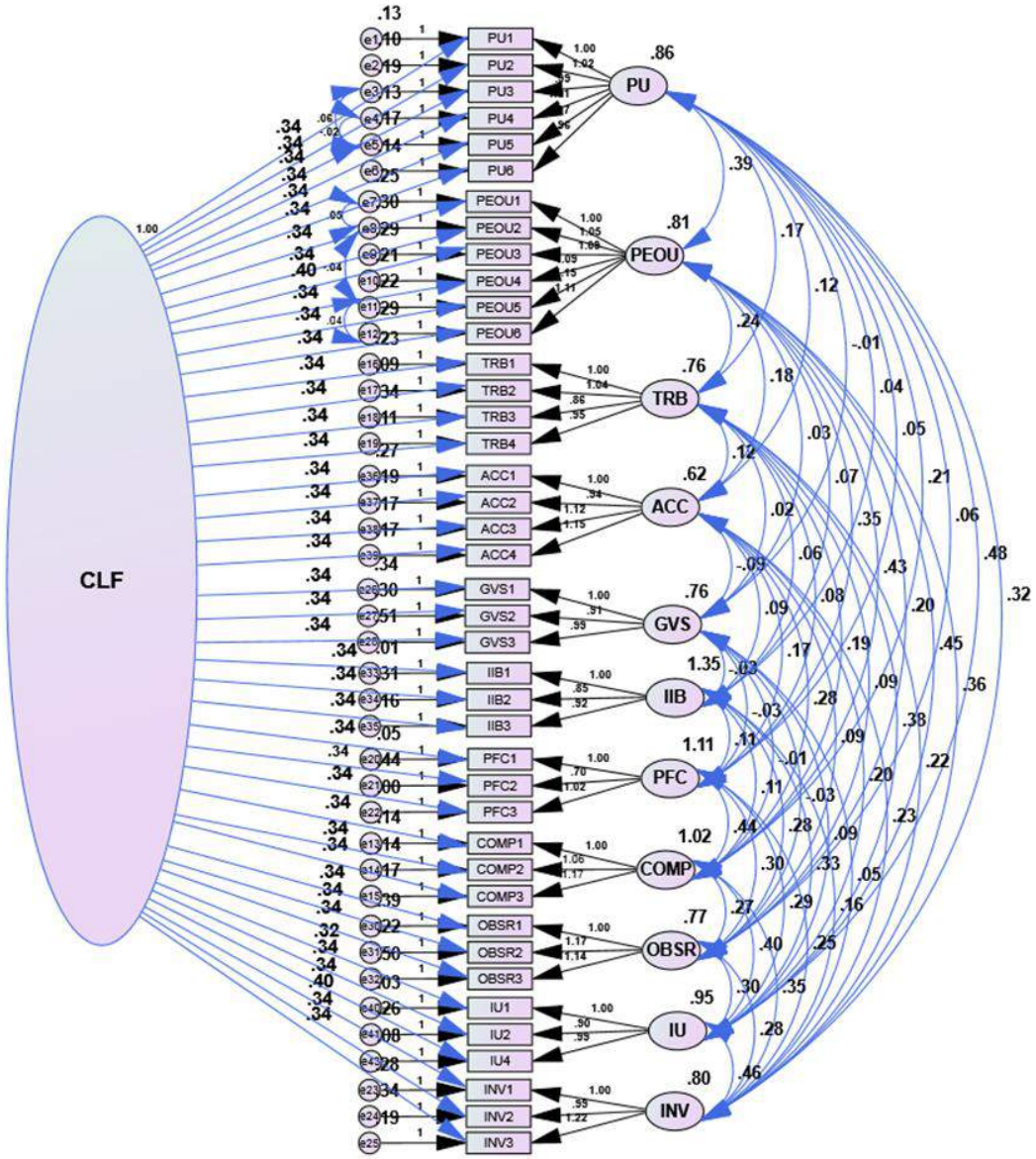
In this research, the Harman's single factor and Common latent factor techniques were performed in order to detect the presence of CMB.

Firstly, Harman's single factor method was employed to test CMB by performing Exploratory Factor Analysis (EFA) for all research measured variables and the number of factors extracted constrained to one with no rotation method. Accordingly, only one factor emerged to explain 35.239 percent of the variance as displayed in Appendix 5M on page 355, which indicates that this single factor does not explain the majority of the variance (less than 50%).

Moreover, the Harman's single factor results were also supported by the common latent factor results using Confirmatory Factor Analysis (CFA). Figure 5-5 below shows the research measurement model after adding a new common latent factor, which was related to all measured variables in the model. These results indicate that the maximum common variance between the new latent factor and all measured variable in the model is 16% (square of .40) which is less than the recommended cut-off point (50%).

As a result, and based on the above findings, it was concluded that common method bias was not a serious concern in this study.

Figure 5-5: CFA for Common Method Bias



PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use, **CLF:** Common Latent Factor.

5.4 The Structural Model: Structural Equation Modelling (SEM)

Having established the measurement model goodness-of-fit and confirmed the validity of all relevant constructs, the focus of the analysis then shifted towards assessing the causal relationships among these constructs as proposed in the research model in Chapter 2 where Figure 2-7 on page 70 presents the current research latent variables with the twenty-two (with H_5 which excluded early based on EFA results) proposed hypotheses.

5.4.1 The Structural Model Evaluation: Goodness-of-Fit

Based on the revised measurement model's latent and observed variables shown in Figure 5-4 on page 165 and their hypothesised theoretical relationships, a structural model was constructed as shown in Figure 5-6 on the next page for further SEM analysis. It can be seen that the structural model consists of three endogenous variables (PU, PEOU, and IU), and eight exogenous variables (COMP, TRB, PFC, OBSR, IIB, GVS, INV, and ACC).

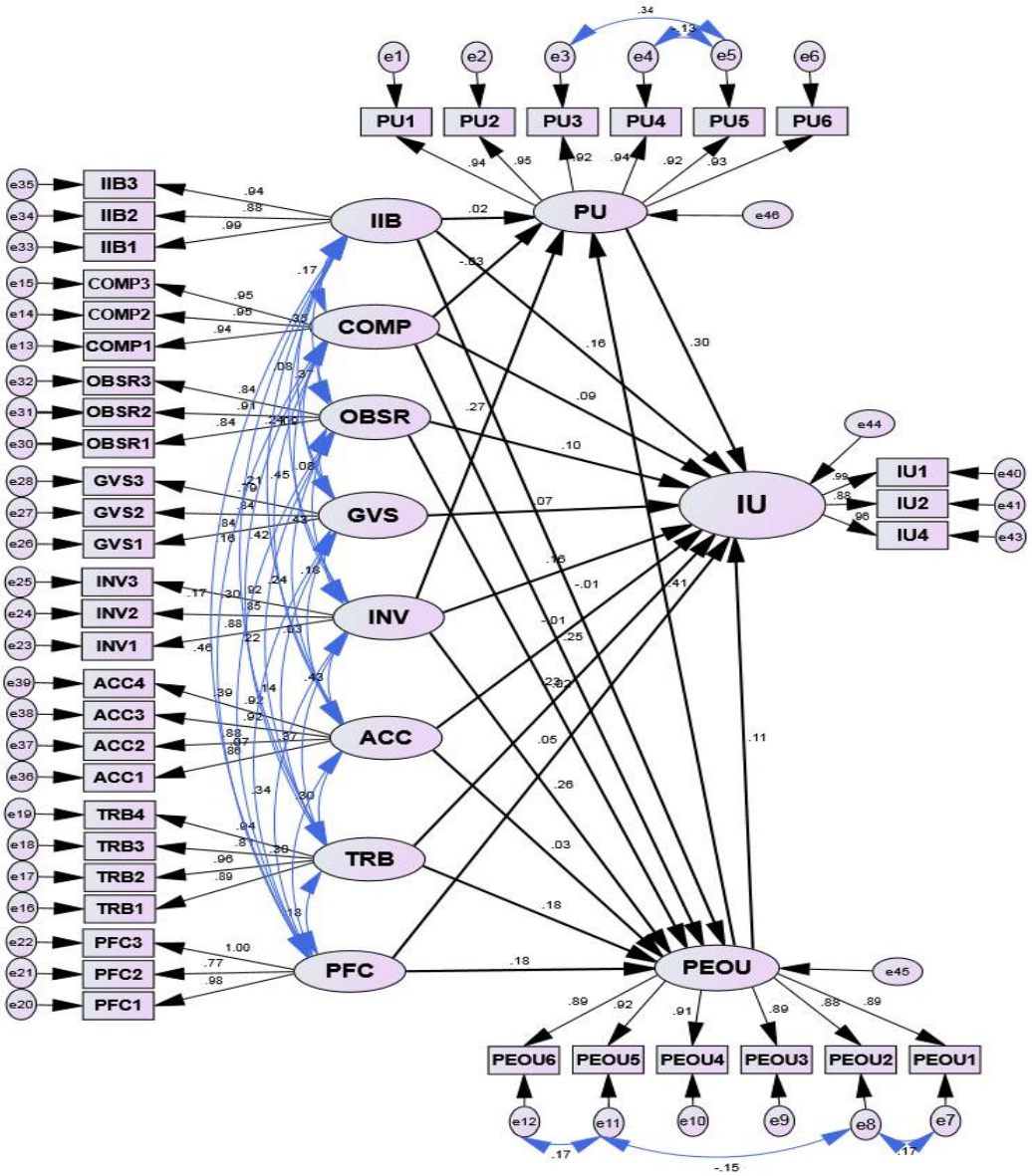
Afterwards, SEM using AMOS 22 was performed in order to assess the goodness-of-fit between the structural model output and the empirical data. The results indicated that the structural model provides a good overall fit with the data as displayed in Table 5-13 on page 173. The full model-fit summary for the first-run of SEM can be found in Appendix 5K on page 353.

Table 5-13: Structural Model Goodness-of-Fit Indices (SEM first-run)

Fit Index		Obtained	Cut-Off	Comment
Absolute	Chi-square (χ^2)	897.461	$0 \leq \chi^2 \leq 2df$	Acceptable
	Normed Chi-square (χ^2)	1.238	$0 \leq \chi^2/df \leq 2$	Acceptable
	RMSEA	0.023	≤ 0.05	Acceptable
	Associated *p*-close	1.000	≥ 0.5	Acceptable
	SRMR	0.0318	≤ 0.05	Acceptable
	RMR	0.038	≤ 0.05	Acceptable
	GFI	0.916	≥ 0.90	Acceptable
	AGFI	0.901	≥ 0.90	Acceptable
Incremental	NFI	0.960	≥ 0.90	Acceptable
	NNFI (TLI)	0.991	≥ 0.95	Acceptable
	CFI	0.992	≥ 0.95	Acceptable

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

Figure 5-6: The Structural Model



PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

5.4.2 Testing Research Hypotheses

Having successfully validated the structural model's goodness-of-fit to the data, the next step was to examine the research hypotheses using path measurement coefficients (regression weight estimates and critical ratios) from the SEM analysis performed with AMOS 22. Figure 5-6 on page 174 and Table 5-14 on page 176 summarise these results, from which it is seen that fourteen of the twenty-one hypothesised causal paths in the structural model were significant at the 0.05 level.

Ten of these paths were statistically significant at $p < 0.001$, while four paths reflecting the direct influence of PU, TRB, INV, and IIB, on IU, the other six

significant paths denoted the influence of PEOU on PU, TRB on PEOU, COMP on PEOU, INV on PU, INV on PEOU, and PFC on PEOU. The remaining four hypothesises were significant at $p < 0.05$, reflecting the direct impact of PEOU, COMP, OBSR, and GVS on IU. Additionally, the results in Table 5-14 reveal that the seven insignificant paths ($p > 0.05$) were the influence of COMP on PU, OBSR on PEOU, ACC on IU, ACC on PEOU, PFC on IU, IIB on PU, and IIB on PEOU.

The following paragraphs present in detail the results of hypotheses testing.

Hypothesis H_1

This hypothesis tested the impact of PU on IU of IB services. The causal path between the two constructs revealed a significant positive influence at a level of $p< 0.001$. Therefore, the null hypothesis fails to be accepted and the alternate hypothesis is accepted (PU positively influences IU). That is, any increase in PU would positively influence customer's intention towards using the IB services.

Hypothesis H_{2a}

This hypothesis tested the influence of PEOU on IU. The causal path between the two variables disclosed a significant positive influence at a level of $p< 0.05$ ($p=0.018$). Accordingly, the null hypothesis fails to be accepted and the alternate hypothesis is accepted indicating that PEOU positively influences customer's intention to use IB services. In other words, any increase in PEOU would positively influence customer's intention towards using of IB.

Hypothesis H_{2b}

The causal path between PEOU and PU revealed a significant positive impact (path coefficient= 0.412, $p< 0.001$, and critical ratio= 7.691). This result inferred that the null hypothesis fails to be accepted and the alternate hypothesis H_{2b} is accepted, which in turn suggests that PEOU has a strong positive impact on PU of using IB services.

Hypothesis H_{3a}

This hypothesis tested the impact of TRB on IU. The causal path between the two constructs revealed a significant positive influence at a level of $p< 0.001$, path coefficient of 0.231, and critical ratio= 6.371. This result demonstrates lack of support for the null hypothesis and hence this alternate hypothesis is accepted

suggesting that TRB has a positive strong effect on customer's intention to use IB services.

Table 5-14: Path Coefficient Weights for the Structural Model

Hypothesis		Estimate	C.R*	p-value	Comment
Code	Path				
H 1	PU → IU	0.287	7.912	***	Accepted
H 2a	PEOU → IU	0.101	2.373	0.018	Accepted
H 2b	PEOU → PU	0.412	7.691	***	Accepted
H 3a	TRB → IU	0.231	6.371	***	Accepted
H 3b	TRB → PEOU	0.192	4.296	***	Accepted
H 4a	COMP → IU	0.078	2.158	0.031	Accepted
H 4b	COMP → PU	-0.032	-0.678	0.498	Rejected
H 4c	COMP → PEOU	0.237	5.229	***	Accepted
H 6a	OBSR → IU	0.099	2.502	0.012	Accepted
H 6b	OBSR → PEOU	0.022	0.436	0.663	Rejected
H 7a	INV → IU	0.156	3.661	***	Accepted
H 7b	INV → PU	0.276	5.254	***	Accepted
H 7c	INV → PEOU	0.261	5.113	***	Accepted
H 8a	ACC → IU	-0.009	-0.235	0.814	Rejected
H 8b	ACC → PEOU	0.035	0.681	0.496	Rejected
H 9a	PFC → IU	0.047	1.507	0.132	Rejected
H 9b	PFC → PEOU	0.166	4.192	***	Accepted
H 10	GVS → IU	0.071	2.052	0.04	Accepted
H 11a	IIB → IU	0.128	4.974	***	Accepted
H 11b	IIB → PU	0.013	0.4	0.689	Rejected
H 11c	IIB → PEOU	-0.007	-.207	0.836	Rejected

*** p< 0.001, *Cut off (C.R >±1.96) (Hair et al., 2010)

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Hypothesis H 3b

The causal path between TRB and PEOU indicated a significant positive influence of TRB on PEOU at a level of p< 0.001. This result showed no support for the null hypothesis and therefore the alternate hypothesis H 3b is accepted, which suggests that TRB has a strong positive impact on PEOU of using IB services.

Hypothesis H 4a

As presented in Table 5-14, the path coefficient and critical ratio estimates for the causal path between COMP and IU were 0.78 and 2.158, respectively. The p value was 0.031 ($p<0.05$) showing lack of support for hypothesis and supports the alternate hypothesis H_{4a} which infers that COMP has positive direct effect and strongly influences the behavioural intention of the bank customers towards using IB services.

Hypothesis H 4b

This hypothesis tested the effect of COMP on PEOU. As shown in Table 5-14, the casual relationship between the two constructs showed insignificant impact ($p= 0.498 > 0.05$). These results provide support for the null hypothesis, which was accepted, and therefore the alternate hypothesis H_{4b} was rejected. This implied that COMP does not positively influence PEOU.

Hypothesis H 4c

Results of regression weight and critical ratio estimates for the causal path of COMP to PEOU were 0.237 and 5.229, respectively with $p<0.001$. These results indicated lack of support for the null hypothesis and therefore accept the alternate hypothesis H_{4c}, which indicates that COMP has a significant positive effect on the PEOU.

Hypothesis H 6a

This hypothesis tested the influence OBSR on IU. As shown in Table 5-14, the causal path between the two constructs revealed significant influence at a level of $p< 0.05$ indicating lack of support for the null hypothesis. Results of regression weight and critical ratio estimates for this path were 0.099 and 2.502, respectively. These results revealed support for the alternate hypothesis H_{6a}, which suggests that OBSR positively influences IU.

Hypothesis H 6b

Results of regression weight and critical ratio estimates for this causal path in Table 5-14 revealed a non-significant impact of OBSR on PEOU ($p=0.663$) where path coefficient was 0.022 and critical ratio of 0.436. Since these findings indicated support for the null hypotheses, it is accepted and the alternate hypothesis H_{6b} is rejected. Therefore, OBSR of IB showed no important influence on customers' attitudes about PEOU.

Hypothesis H 7a

The path coefficient and critical ratio estimates for INV and IU causal link were 0 .156 and 3.661 respectively indicating significant influence at p<0.001. These results indicated lack of support for the null hypothesis and therefore supported the alternate hypothesis, therefore, the null hypothesis fails to be accepted, and alternate hypothesis H 7a is accepted, which suggests a positive influence of INV on IU.

Hypothesis H 7b

Results of path coefficient and critical ratio estimates of INV to PU were 0.276 and 5.254 respectively, and were significant at p<0.001. These results offered no support for the null hypothesis and therefore it fails to be accepted and the alternate hypothesis H 7b is accepted. This suggested that INV has a significant positive impact on PU of IB.

Hypothesis H 7c

This hypothesis tested the impact of INV on PEOU. The causal path between the two constructs produced regression weight of 0.261 and critical ratio of 5.113 indicating a significant influence at p<0.001. These results, therefore, provided a strong support for the alternate hypothesis since the null hypothesis is fail to be accepted. Which means that INV positively influences the PEOU of IB services.

Hypothesis H 8a

As presented in Table 5-14, the path coefficient for this causal path was - 0.009 and its critical ratio value was low as -0.235, moreover, the p value was 0.814. As it is clear, these findings suggesting a non-significant effect of ACC factor on the customers' intentions to use IB. Therefore, since the results revealed support for the null hypothesis, it is accepted and therefore the alternate hypothesis H 8a is rejected.

Hypothesis H 8b

The path statistics in Table 5-14 (path coefficient= 0.035, critical ratio= 0.681, and p-value = 0.496) showed support for the null hypothesis which therefore is accepted and the alternate hypothesis is rejected. In other words, SEM results demonstrated insignificant positive influence of customers' ACC of IB services on their intentions towards using those services.

Hypothesis H 9a

This hypothesis tested the causal relationship between PFC and IU. The hypothesis testing results revealed a non-significant impact where path coefficient was 0.047

and critical ratio = 1.507 at p =0.132. Accordingly, this result showed support for the null hypothesis indicating that PFC does not positively influence customer's intention to use IB services. Therefore, the alternate hypothesis H 9a is rejected.

Hypothesis H 9b

The regression weight and critical ratio estimate for PFC to PEOU were 0.166 and 4.192, indicating no support for the null hypothesis with significance level of p<0.001. These results suggested accepting the alternate hypothesis H 9b since the null hypothesis fails to be accepted, which endorses the positive influence of low PFC on PEOU.

Hypothesis H 10

This hypothesis tested the influence of GVS on IU. The casual path between the two constructs revealed a significant positive impact at a level of p< 0.05 (path coefficient of 0.071, and critical ratio= 2.052). Therefore, this result established no support for the null hypothesis leading to accept the alternate hypothesis H 10 which suggests that GVS does positively influence IU.

Hypothesis H 11a

The casual path between IIB and IU revealed a significant positive influence at a level of p< 0.001 (path coefficient was 0.128 and critical ratio was 4.974). Thus, these results disclosed no support for the null hypothesis, therefore this null hypothesis fails to be accepted, and the alternate hypothesis H 11a is accepted which indicates that IIB has a direct positive effect on customer's intention to use IB services.

Hypothesis H 11b

As presented in Table 5-14, the path coefficient, critical ratio, and p-value for the customer's IIB to PU were 0.013, 0.4, and 0.689 respectively, suggesting that the path was not statistically significant. These results indicated support for the null hypothesis, which is therefore accepted and the alternate hypothesis is rejected, means that IIB does not positively influence IU.

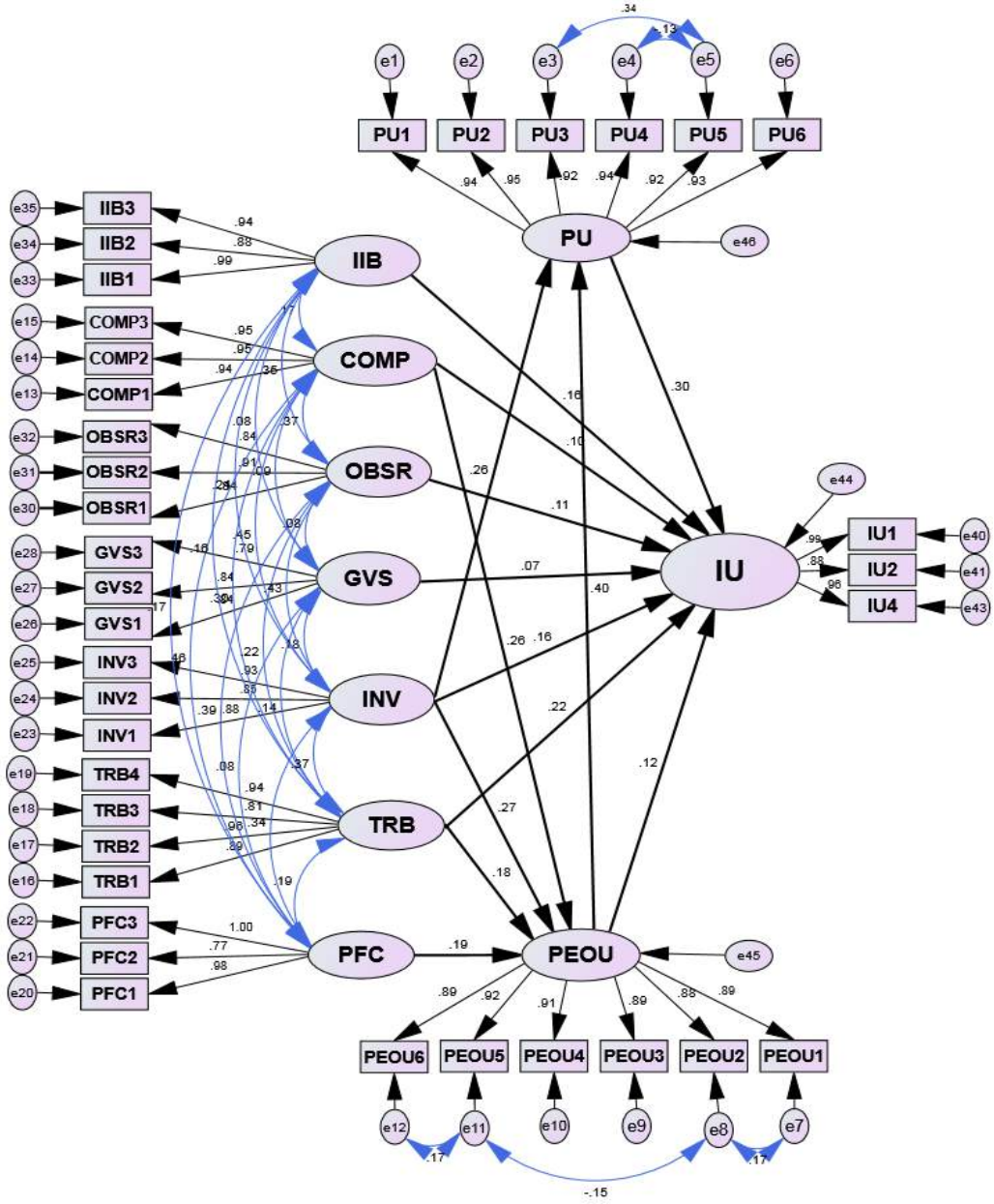
Hypothesis H 11c

The path coefficient, critical ratio, and p-value for IIB to PEOU were -0.007, -0.207, and 0.836 respectively. These results therefore suggested a non-significant influence of IIB on PEOU. Thus, the null hypothesis is accepted and the alternate hypothesis H 11c therefore is rejected.

5.4.3 The Final Research Model

Subsequently, in an attempt to secure a parsimonious model that would better fit the empirical data, all insignificant regression paths were excluded from the model, including the ACC construct, due to its ineffectual impact as noted earlier. The final structural model is shown in Figure 5-7 below.

Figure 5-7: The Revised Structural Model



PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

In addition, Table 5-15 below shows that the overall goodness-of-fit for the revised structural model was slightly improved because of excluding the non-significant regression paths. The full model-fit summary for the second-run of SEM can be found in Appendix 5L on page 354.

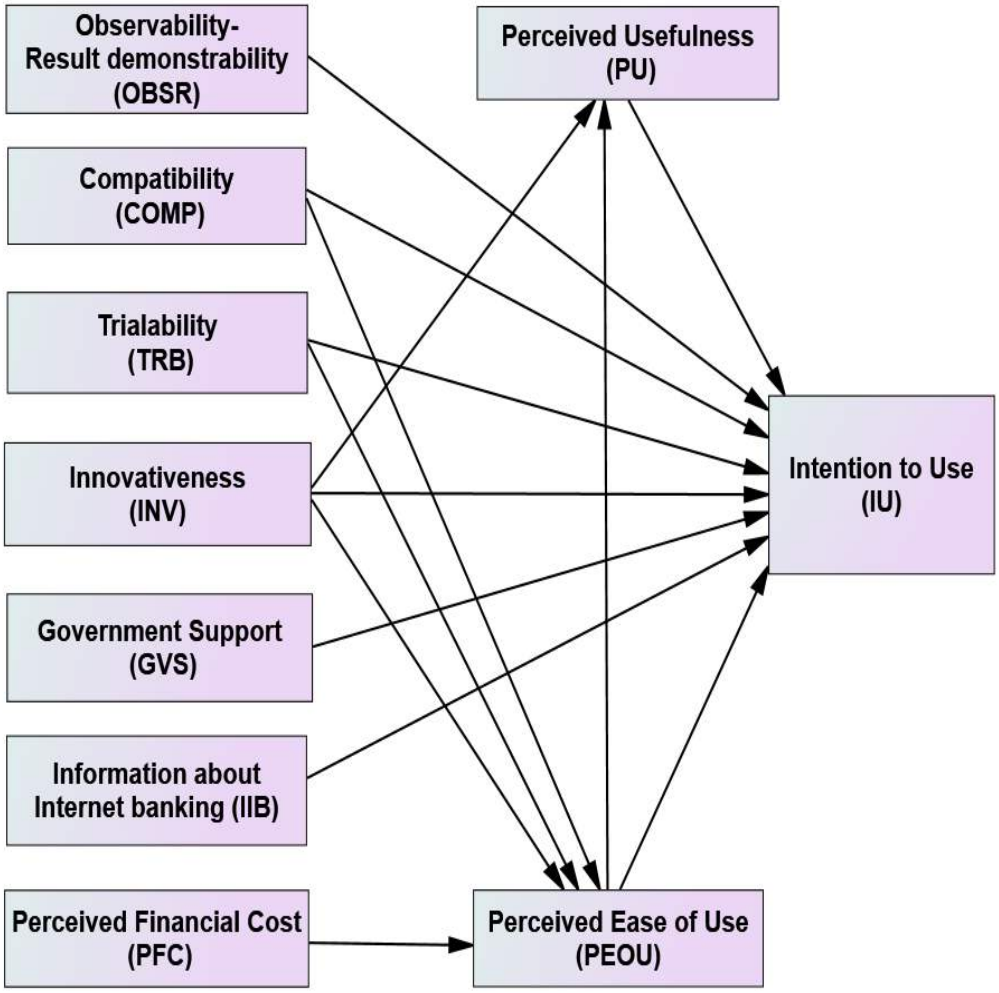
Table 5-15: Structural Model Goodness-of-Fit Indices (SEM second-run)

Fit Index		Obtained	Cut-Off	Comment
Absolute	Chi-square (χ^2)	735.413	$0 \leq \chi^2 \leq 2df$	Acceptable
	Normed Chi-square (χ^2)	1.249	$0 \leq \chi^2/df \leq 2$	Acceptable
	RMSEA	0.023	≤ 0.05	Acceptable
	Associated *p*-close	1.000	≥ 0.5	Acceptable
	SRMR	0.0328	≤ 0.05	Acceptable
	RMR	0.040	≤ 0.05	Acceptable
	GFI	0.923	≥ 0.90	Acceptable
	AGFI	0.909	≥ 0.90	Acceptable
Incremental	NFI	0.964	≥ 0.90	Acceptable
	NNFI (TLI)	0.992	≥ 0.95	Acceptable
	CFI	0.993	≥ 0.95	Acceptable

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

Overall, after removing insignificant paths from the original model, a more parsimonious revised model was obtained, indicating a better fit with the collected empirical data. Figure 5-8 on the next page displays the final research model.

Figure 5-8: The Final Research Model



5.4.4 Further Assessment of the Revised Structural Model

In order to assess the explanatory power of the final research model shown in Figure 5-8 on page 182 and to shed more light on the nature of the relationships among the model constructs, Squared Multiple Correlations (SMC) estimates along with total (direct and indirect) effects for the final model variables were analysed (Tables 5-16 and 5-17 respectively on the next page).

Table 5-16: Squared Multiple Correlations for Endogenous Factors

Factor	SMC
Perceived Usefulness	0.332
Perceived Ease of Use	0.432
Intention to Use	0.617

Table 5-17: Standardised Effects (Direct, Indirect, and Total Effects)

Factor	Effect	TRB	IIB	OBSR	GVS	INV	PFC	COMP	PEOU	PU
PEOU	Direct	0.184	0.0	0.0	0.0	0.268	0.190	0.262	0.0	0.0
	Indirect	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.184	0.0	0.0	0.0	0.268	0.190	0.262	0.0	0.0
PU	Direct	0	0.0	0.0	0.0	0.262	0.0	0.0	0.396	0.0
	Indirect	0.073	0.0	0.0	0.0	0.106	0.075	0.104	0.0	0.0
	Total	0.073	0.0	0.0	0.0	0.368	0.075	0.104	0.396	0.0
IU	Direct	0.224	0.164	0.110	0.068	0.162	0.0	0.099	0.122	0.297
	Indirect	0.044	0.0	0.0	0.0	0.142	0.046	0.063	0.118	0.0
	Total	0.268	0.164	0.110	0.068	0.304	0.046	0.162	0.240	0.297

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

From reviewing Tables 5-16 and 5-17 and Figure 5-8, it emerges that IU is significantly predicted by eight constructs PU, PEOU, TRB, IIB, OBSR, GVS, INV, and COMP, which together explain a total of 61.7% of the variance in IU.

Additionally, Table 5-17 shows the standardised total effects of one construct on another, which is the sum of both direct and indirect effects. In the direct effect case, there are no intervening variables and the effect represents only the path coefficient between the two constructs. The indirect effect, on the other hand, represents the effect of one construct on another through one or more intervening variables. The effect here represents the product of path coefficients between intervening variables and the endogenous variables.

For example, considering the effect of TRB on PEOU, PU, and IU, on one hand, it is clear that the total effect of TRB on PEOU is only the direct effect (0.184), which

is the path coefficient between the two constructs (Figure 5-7 on page 180). On the other hand, TRB is indirectly influencing PU and IU. TRB has a total effect on PU of 0.073 which is entirely indirect and represents the product of the path coefficient from TRB to PEOU and the path coefficient from PEOU to PU (0.184 * 0.396) = 0.07286. Moreover, the total effect of TRB on IU (0.268) represents both direct and indirect effects of TRB on IU.

The direct effect (0.224) is the path coefficient between the two constructs, whereas the indirect effect is the effect through PEOU (0.044) which is the product of the path coefficient from TRB to PEOU (0.184), and the total effect of PEOU on IU (0.240). The total effect of PEOU on IU is the sum of both direct and indirect effects of PEOU on IU, while the direct effect is 0.122; the indirect effect of PEOU on IU is 0.118, which is the product of the path coefficient from PEOU to PU (0.396) and the path coefficient from PU to IU (0.297). Overall, the total effect of TRB on IU is the sum of direct and indirect effects, 0.224 + 0.044 = 0.268.

In addition, by reviewing the total effects of the research construct on the main research dependent variable IU, it can be seen that the largest impact is of INV (0.304) from which 0.162 represents the direct effect and 0.142 the indirect effect through PU and PEOU, followed by PU (0.297), TRB (0.268), and PEOU (0.240). The smallest total effect is the indirect influence of PFC on IU (0.046).

Furthermore, the SMC suggest that 33.2% of the variance in PU could be explained by PEOU (total direct effect = 0.396) and INV (total effect = 0.368, 0.262 directly and 0.106 indirectly through PEOU). On the other hand, COMP, INV, PFC, and TRB significantly predict PEOU. These factors explain 43.2% of the variance in PEOU. While INV has the largest direct effect (0.268) followed by COMP (0.262), the lowest direct effect on PEOU is by TRB (0.184).

5.5 Summary

This chapter has presented the results of the inferential analysis, focusing on the EFA, CFA, and hypothesis testing results. It has discussed how, prior to conducting EFA, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of Sphericity were performed to ensure the appropriateness of the data set to EFA. The results of the two tests showed that the quantitative data collected from

the study sample supported the use of EFA. The results of EFA revealed some items below the recommended cut-off value of communalities of (0.6), thereby suggested they be dropped from further analysis. Consequently, an eleven-factor solution was recommended and confirmed by EFA as a base for further SEM analysis.

Thereafter, SEM analysis was performed via a two-step approach. In the first step, a CFA measurement model was developed and then tested for composite reliability and construct validity. After some model rectifications, the CFA results revealed acceptable goodness-of-fit indices for the measurement model.

Lastly, based on the results of CFA, a structural model was developed and tested to examine the hypothesised causal relationships among the latent constructs in the proposed research model. Goodness-of-fit indices indicated the structural model to provide an acceptable level of overall fitness with the empirical data. Moreover, the path coefficients were examined to test the research hypotheses. Of twenty-one hypotheses, only fourteen were found statistically significant. Finally, the research model was refined by removing the insignificant paths in order to reach more parsimonious model. The following chapter presents the semi-structured interview findings.

Chapter 6: Qualitative Data Presentation and Analysis: Semi-structured Interviews

6.1 Introduction

This chapter presents and analyses the qualitative data gathered via the semi-structured interviews with six Jordanian bank customers. The interviews were held in order to: (1) obtain further details and explanations about the findings of the quantitative analysis concerning influential factors upon customers' intentions to use IB; (2) provide further confirmation of the research model and hypotheses; (3) provide explanations for the results of the hypotheses-testing; and (4) reveal any further issues to be considered when studying IB in Jordan in the future.

The chapter is divided into six sections. After this short introduction, the demographic profiling of the interviewees is presented, and the findings relating to the main influential factors on the adoption of IB in Jordan as revealed by the quantitative data analysis are then discussed. The fourth section considers the interviewees' responses regarding the hypotheses concerning the ACC factor, and is followed by an incorporation of the qualitative data findings within the final research model in the fourth section. The chapter ends with a brief summary.

6.2 Interviewee Profiles

The interview sample included both IB users and non-users in Jordan, and the characteristics of those involved appear in Table 6-1 on the next page. The names and identities of interviewees are not given in the interests of confidentiality and in accordance with the ethical approval requirements prescribed by the LJMU. A coding scheme was used to identify participants (e.g. V1, V2, etc.). Table 6-1 shows the demographic composition of the sample, revealing that three of the six had already used the Internet for their banking transactions, and these users comprised two males and one female, had at least a Bachelor degree, included two private-sector employees and one public-sector employee, were between 31 and 60 years of age, and had moderately to high monthly income level.

The non-users were comprised of two females and one male, were categorised as very young (15-20), young (21-30), and elderly (over 60). In terms of education level, they were less educated than users, holding only high school or diploma degrees, with the exception of one student who was studying for Bachelor degree at the time of the interview. In occupational terms, they were a public-sector employee, a student, and the oldest was a retired public-sector employee. Lastly, while two non-

users earned 300-500 Jordanian Dinars monthly, the student non-user had less than 300 Jordanian Dinars as a monthly income.

Table 6-1: Demographic Characteristics of Interview Participants

Participant	IB Usage Status	Gender	Age Group (Years)	Level of Education	Current Occupation	Monthly Income (JD)
V1	User	Male	31-40	Bachelor	Private-sector	801-1,100
V2	Non-user	Female	21-30	Diploma	Public-sector	300- 500
V3	User	Female	41-50	Master	Private-sector	501-800
V4	User	Male	51-60	Doctorate	Public-sector	More than 1,100
V5	Non-user	Male	Over 60	High school	Retired	300- 500
V6	Non-user	Female	15-20	Bachelor	Student	Less than 300

V1: the first participant**, V2:** the second participant, **V3:** the third participant, **V4:** the fourth participant, **V5:** the fifth participant, **V6:** the sixth participant.

6.3 Qualitative Data Analysis Results

Data triangulation was applied in the qualitative data analysis phase to enhance reliability and support the level of accuracy of the results found from the collected data (Creswell, 2014). In addition to the primary data gathered via the interviews, the following different sources of secondary data were integrated into the analysis of semi-structured interviews:

- Twenty-two bank documents that included IB policies and website data for all commercial banks in Jordan.
- Five Jordanian government documents which included:
    1. National Information and Communication Technology Strategy (2013-2017) in Jordan (MOICT, 2012).
    2. National E-commerce Strategy in Jordan (MOICT, 2008).
    3. National Information Assurance and Cyber Security Strategy (NIACSS) in Jordan (NITC, 2012).
    4. General Government policy for universal service in the telecommunication sector in Jordan (MOICT, 2004).
    5. IT Use at Homes in Jordan (DoS, 2015).

- Twenty-four Journal articles directly related to the final model variables and to the context of this study.

Further validity checks were made during the qualitative data analysis by only considering a critical mass of themes that were supported by at least six different sources. NVivo 11 software was employed to analyse both primary and secondary qualitative data. This software helped the researcher to analyse the qualitative data by providing a powerful tool for organising, classifying, and sorting the data better than traditional manual analysis techniques (Welsh, 2002; Bazeley and Jackson, 2013).

The final IB adoption model shown in Figure 5-8 on page 182 underpinned this analysis as the nine factors identified were used as initial themes, which later represented the main nodes used in NVivo 11 for analysis.

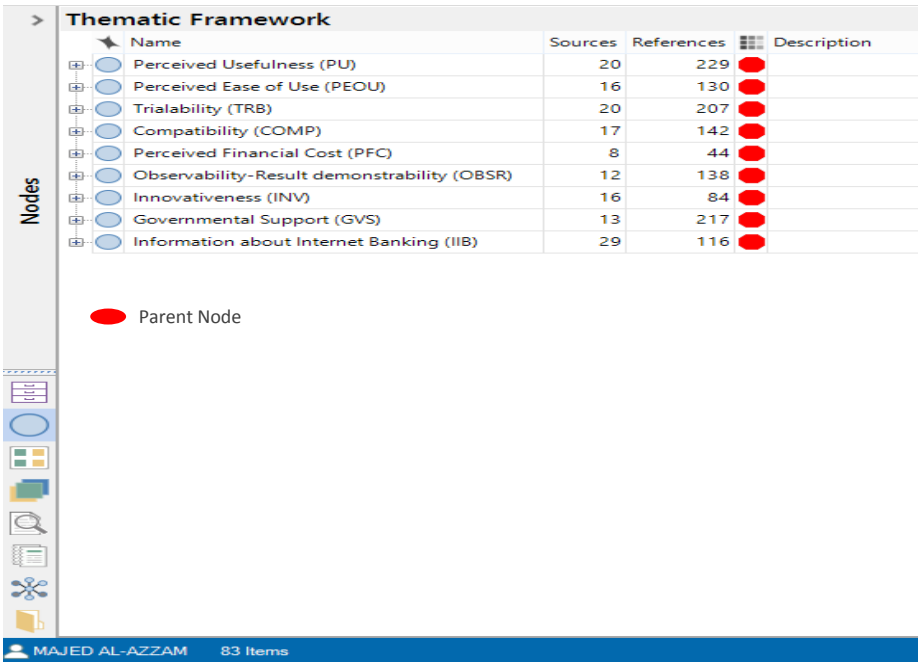
The transcriptions of the six interviews together with notes made at the time of the interviews were searched and carefully examined by the researcher to check for the following initial themes and to extract any related sub-themes based on participants' responses. This process is known as Axial data coding. The following nine initial themes from the final model were coded and confirmed:

1. Perceived Usefulness (PU)
2. Perceived Ease of Use (PEOU)
3. Trialability (TRB)
4. Compatibility (COMP)
5. Perceived Financial Cost (PFC)
6. Observability-Result Demonstrability (OBSR)
7. Innovativeness (INV)
8. Government Support (GVS)
9. Information about Internet banking (IIB)

In line with these initial themes, a nine-node thematic framework was created to serve as a base for the data analysis in NVivo 11. Sub-nodes were then extracted based on a careful analysis of participants' responses on each main node. This concept of nodes and sub-nodes is also known in NVivo 11 as 'parent' and 'children' nodes respectively. For example, participants' perceptions towards PU as a main node would be considered a parent node and sub-nodes emerging as a result of these perceptions (e.g. convenience, speed, and timesaving) considered as

children nodes. This approach entails the development of tree nodes that show the hierarchal structure of parent nodes and child nodes. A thematic framework of nodes and sub-nodes was then developed and verified against the primary and secondary data via the coding process. Coding entails recording the number of participants' responses for each node (evidence) and showing the source of this evidence (the participant who had provided that response and/or the secondary data source) (Hutchison et al., 2010; Bazeley and Jackson, 2013). This step was important in order to observe any key patterns or emphases in the data and to draw valid conclusions that could sharpen understanding and illuminate the research problem (Hutchison et al., 2010). Figure 6-1 below shows the results of the coding process using NVivo 11.

Figure 6-1: NVivo Results of Thematic Framework Coding Process



The following sub-sections provide the detailed results of the qualitative data analysis in respect of the factors identified by the research model and the causal relationships among them. Screen shots and maps of NVivo 11 as well as direct quotes by interviewees are provided where appropriate as means of illustrating and summarising the findings.

6.3.1 Perceived Usefulness (PU)

With regard to the PU construct, participants were asked if they considered it as one of the significant factors influencing their behavioural intentions towards the acceptance and use of IB. Most participants agreed on the importance of this factor. For example, two IB users explicitly stated that IB services were helpful and beneficial for them, as revealed by the following comments:

> *"Actually, I used to do my banking by physically visiting the bank once a week. I found IB very helpful, because I do not have to visit the bank every week any more, instead, I can do all needed banking transactions remotely via the web. It is a great help for me to be able to check balances daily without calling the bank, and also it is fantastic to be able to request a cheque book online and for it to be delivered to me by post later."* **(V1)**

Also:

> *"I believe that IB is very useful for me, because I don't have to travel to a local branch every time I need to do a banking transaction, or even to call them by telephone in specific work hours. Now, I can do banking 24/7 just from my living room. For example, paying my family bills is not distressing me anymore; I can do it easily through IB. What is more, communicating with my bank for any reason has become easier and more efficient than before."* **(V3)**

Interestingly, non-users also indicated that despite not being users, they did hold positive attitudes about the benefits of IB. Some believed that they simply needed more time to consider using IB services, referring to their need to fully understand its advantages before becoming users. For example, one non-user said:

> *"Even I thought before that I don't need to use IB as I am not a regular banking user, my friend told me about it, and I am now fully convinced that it has many advantages that I can enjoy. Being able to do transactions online saves me a lot of time as well as travelling costs, and it is just one shiny side as I think. The ability to view my statements online is another brilliant benefit; by doing so, I could manage my financial activities more easily and efficiently. Therefore, I am up to know more about this service and how to do it in the very near future."* **(V2)**

As well as these comments about convenience, speed, and timesaving being frequently highlighted by most participants as important benefits associated with using IB, they were also commonly mentioned in the secondary data. Hence, these benefits were extracted as sub-nodes (children) from the main node (parent).

Convenience was mostly described by participants in terms of comfort, no need for queuing, access anytime/anywhere, autonomy in performing own transactions, personal privacy, and personal safety.

Participants also believed that performing their banking transactions through the Internet was faster than doing so by other banking methods (ATMs, telephone, and physical branch). They described IB as being a less stressful and more efficient way of conducting banking transactions.

Moreover, participants believed that IB services would save them time, and this would add value to their day-to-day lifestyle as they could manage their time more efficiently. Figures 6-2 and 6-3 below show the NVivo 11 tree node and visual map for PU.

Figure 6-2: NVivo Tree Node for PU

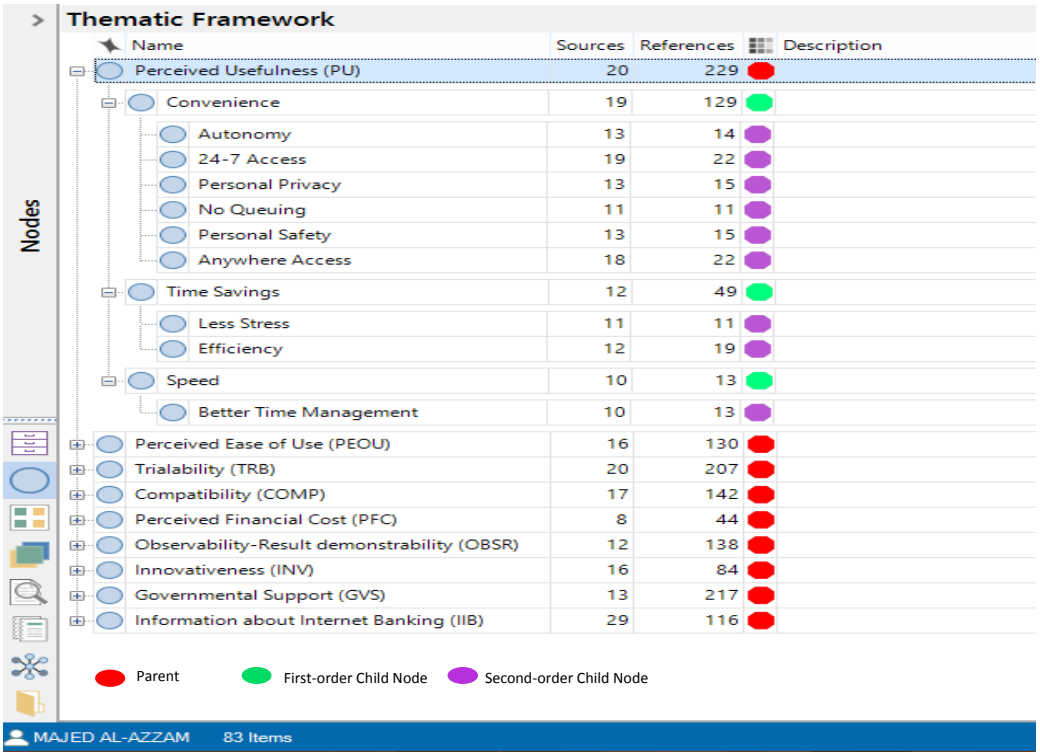
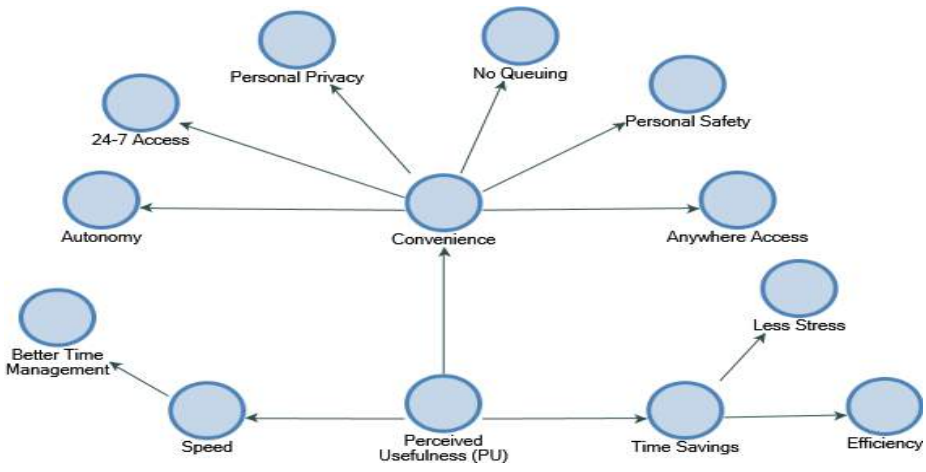


Figure 6-3: NVivo Visual Map for PU



6.3.2 Perceived Ease of Use (PEOU)

Most IB users and one non-user confirmed that ease of use is associated with IB since it was not seen to require any special skills for any of its applications. One participant said:

> *"I don't see IB as boring or difficult to master, I find it easy to learn or even use such technology. Maybe sometimes I feel that I am stuck somewhere and cannot figure out how to fulfil it, but usually I manage to sort it out quickly and easily. Usually I enjoy banking online as I do think it is clear and straightforward application."* **(V1)**

One non-user highlighted that although she was not using the service, she believed it would not be difficult for her to do so, saying:

> *"Let us put it like this, as a marketing student, I spend much time using the Internet these days, so, as you see I am familiar with Internet applications of all kinds. Therefore, if I decide to use IB I am fully confident that I could do that without difficulty based on the fact that this kind of technology is user-friendly and straightforward like most Internet applications these days."* **(V6)**

Moreover, participants expressed their opinion that IB resulted in less mental effort and stress. They believed that easy-to-follow instructions if offered by the bank's website would make it easier for them to remember how to use the service each time.

Additionally, while some users believed that their good Internet experience played an important role in this matter; other users claimed that easy-to-navigate IB websites also did this. Such websites were seen to have clear and straightforward instructions and procedures for completing banking transactions, less technical and transactional errors, and giving a highly reliable and consistent level of service over time.

However, two non-users mentioned that the difficulty associated with IB for them, was not related to the service itself, but to the required computer and Internet knowledge. One participant **(V5)** claimed that he had difficulties in using computers, and the other participant **(V2)** referred to her limited experience with the Internet. These thoughts were echoed by the quantitative data analysis, which revealed that in respect of the effect of PEOU on PU, user-friendly technology was believed to encourage customers to explore the benefits of IB and play an important role in attracting them to try it for the first time. Therefore, easy-to-use IB was perceived to add value to the service, resulting in higher levels of acceptance by customers.

"As a regular user of IB, I like the easy access and the user-friendly service. Yes, that was important for me when I decided to try the service for the first time; I would not have discovered how it is valuable for me to use IB if it is not that easy to perform." **(V1)**

Also:

"Of course, in order to take the first move toward using IB services it must be user-friendly and easy to use. I don't think the complex systems would be attractive for me, but if it can be handled easily I think that will be a good start in order to find out more about it." **(V4)**

Figures 6-4 and 6-5 below show the different dimensions of PEOU as described by participants and in the secondary data.

Figure 6-4: NVivo Tree Node for PEOU

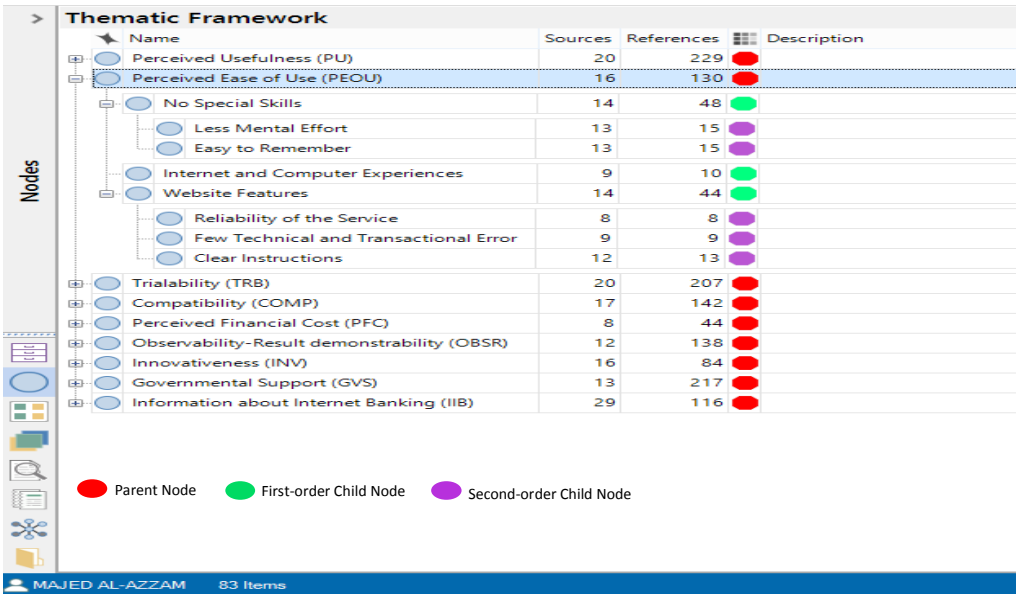
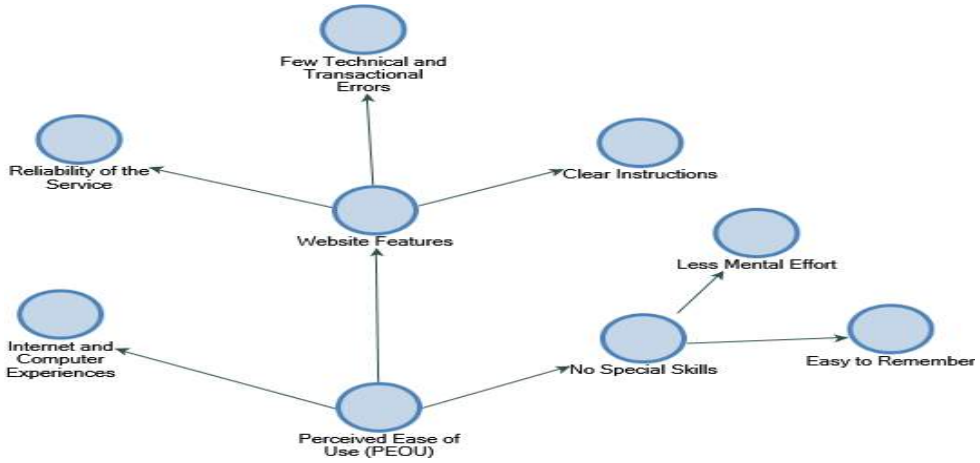


Figure 6-5: NVivo Visual Map for PEOU



6.3.3 Trialability (TRB)

Most interviewees emphasised the importance of having the opportunity to experience and test IB services before starting to use them. One non-user expressed her thoughts about that as follows:

> *"Before I use IB, I have many questions: what if I found it complicated and difficult to use? What if something goes wrong? How would be my first use of the system? Thus, I totally agree that my bank may let me try it first without any obligation. If they do so, I think this will answer most of my questions and would encourage me to take the first move toward banking online."* **(V2)**

Participants' responses about TRB indicated some benefits and issues. For example, some interviewees highlighted that offering a free trial of IB would be helpful to them in many aspects. Firstly, it would enable them to become familiar with the service, thereby making them aware of the full potential of IB and how this service might be useful for them. Secondly, becoming familiar with the service would enhance their self-confidence in using the service as the bank staff could clarify any ambiguity during training or testing-the-service sessions. Thirdly, as all participants claimed that they had not received any training from their banks, they strongly recommended that banks should consider providing formal training sessions about IB for their customers. In such supervised training sessions, bank employees could show customers how to create online accounts and describe in detail the features of IB and the possible banking transactions that can be accomplished through it. Consequently, customers would become comfortable about using the service by themselves in the future, and feel less stressed about not having sufficient information.

Moreover, some participants also suggested that their banks should provide customers with a 24/7 free help-line number for handling problems and inquiries that may arise whilst using IB. By doing that, banks would enhance customer trust in the bank and eliminate any fears about unexpected situations.

In order to shed more light on the TRB/PEOU causal relationship, interviewees were asked to provide their opinions about the nature of this link. Most of them mentioned that a sufficient opportunity to trial IB would allow them to judge how it is easy to use it and improve their self-confidence, as seen in the following examples:

> *"I believe our bank should offer us training sessions, my bank should let me try IB freely for some time. You know, I was so nervous when using it the first time, but luckily, I found it easy and straightforward. Trying the service first surely*

would help to eliminate any new technology anxiety as well as give me good first impression needed to use it easily." **(V4)**

Also:

"How would I know if it was easy to use the service or not if I don't have the opportunity to try it? Therefore, I would consider it important if the first use does not count and goes without any obligation. Yes, trying IB for an appropriate period of time would make it easy for me to handle my transactions electronically. Even if I find it difficult, trying it over time would actually solve this problem." **(V6)**

Figures 6-6 and 6-7 below show the qualitative data analysis regarding the TRB of IB services.

Figure 6-6: NVivo Tree Node for TRB

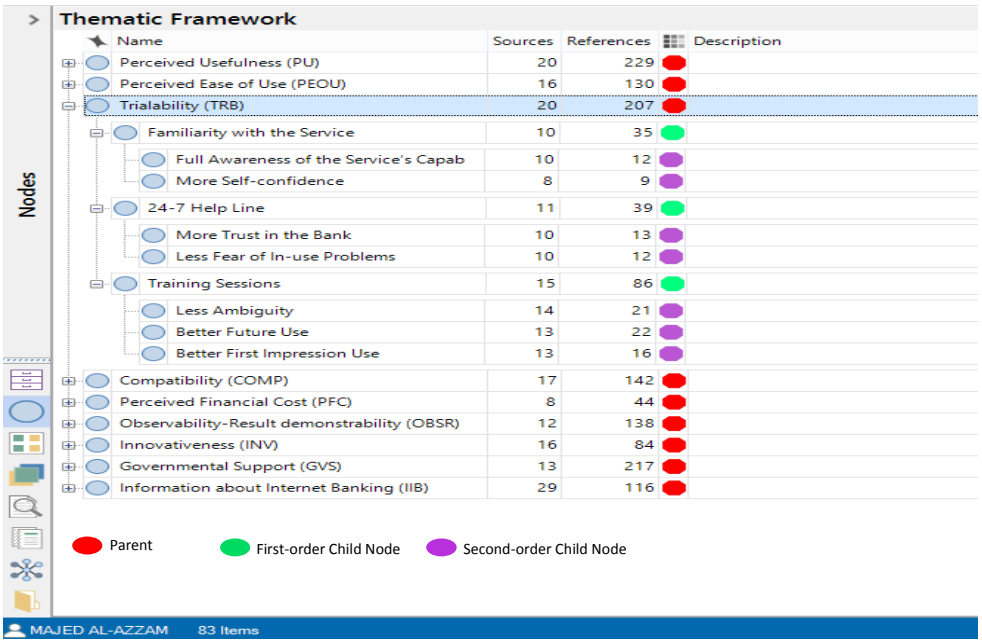
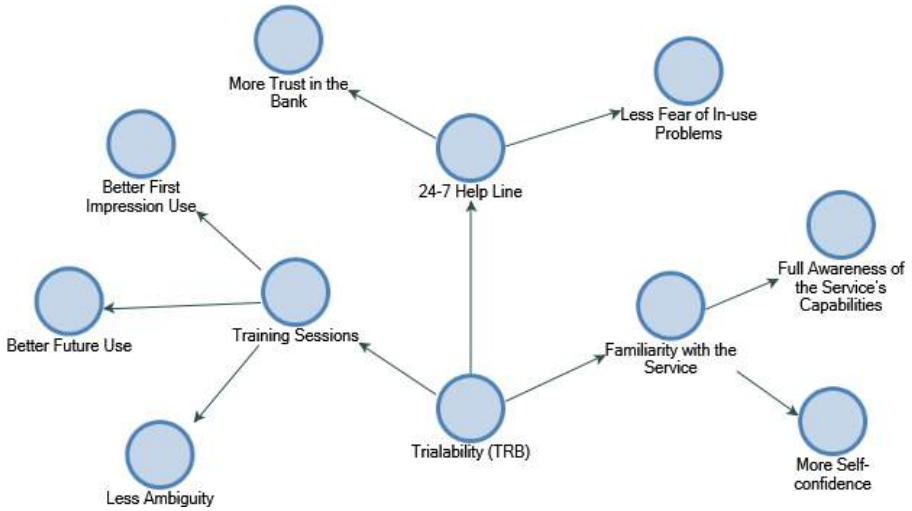


Figure 6-7: NVivo Visual Map for TRB



6.3.4 Compatibility (COMP)

Users and non-users held different views regarding the compatibility of IB with their lifestyles. Users perceived the services as compatible with their lifestyles and well matched to their various banking needs. According to them, COMP brought them flexibility, convenience, speed, and accuracy. For example, one user mentioned that IB provides him with a flexible and convenient way to bank since he is able to complete most of his banking transactions while he is at work without the need to visit the bank physically.

> *"I used to work long hours and travel for long distances in marketing, and it is not always possible for me to travel to my branch to do banking. IB gives me the flexibility and convenience I need to get all my banking done anytime."* **(V1)**

Another user clearly expressed her beliefs that IB should be considered compatible with customers' lives since it is in line with what we are enjoying these days of technology advancements.

> *"I think IB is compatible with our modern life these days. In a technology-intensive world, I find it typical to deal with many new technologies in the banking industry. Most people nowadays are familiar with the Internet and its related applications; thus, we are comfortable with these new ideas and that might be a factor encouraging us to adopt such services."* **(V3)**

Another user expressed his agreement that IB is compatible because of the flexibility it offers, which in turn resulted in better management of his own time.

> *"It is so wonderful to be able to do most of my banking at the weekend in my sleeping clothes without even getting out of my bed. This saves most of my weekdays for other work and social activities."* **(V4)**

On the other hand, non-users perceived the compatibility of IB differently. They believed that other methods of banking (telephone banking, ATMs, and physical branches) suited their lives better and that banking is more than what IB can provide. They mentioned various reasons for this incompatibility including, limited banking needs due to few financial transactions**,** information overload**,** and the lack of human contact since they would lose the personal relationships with branch personnel if they used IB.

For instance, one non-user believed that IB did not fit with his banking needs, as he was not a heavy user of banking services, making only simple and infrequent transactions.

"I think IB has nothing new to offer for me, I usually don't need to travel to my bank a lot and I haven't many banking activities to do, so that is why I don't want to use it." **(V5)**

Explanations were sought from interviewees about the insignificant effect of COMP on PU. One interviewee justified the absence of the causal relationship between the two factors by considering them as different concepts measuring different things. COMP was not necessarily seen as the same as being useful/valuable. In fact, the opposite may be true. A useful technology that provides individuals with many benefits and advantages over other technologies may be considered more compatible and fit better with their lives as explained by interviewees **V6** and **V1** below.

"Maybe it is good to be compatible with my daily routine, but I don't see IB as providing that compatibility, if compatibility is a measure of 'fit', usefulness is a measure of 'value', in my opinion they are different." **(V6)**

Also:

"I have been using the Internet for a long time; I don't see IB as odd or a special application. I enjoy it since I do not have to hurry to my bank branch for my transactions. I like the flexibility. Being a current user of many Internet-based applications, I do not think that influenced me to go online for my banking activities. What did so is much more than that. It is what I will gain from it." **(V1)**

Furthermore, participants were asked about the influence of COMP on the PEOU of IB. The majority agreed on the good fit between IB and their lives since it was easier to fulfil their banking needs online. They believed such compatibility to result in a stress-free existence, and that IB was easy to master, and did not call for learning new technical or mental skills. For instance, Interviewee **V3** stated that:

"*I love that my IB works fine with my life habits. Yes, I found it easy to use since I did not change my life when I tried it for the first time. You know, if I need to change a lot about how I do things and how my life is going, I will think twice when switching to this new method, but fortunately that was not the case with IB."* **(V3)**

Interviewees **V4** and **V6** also added:

"As long as IB applications do not require me to learn new skills and processes, I would find it easy to perform. Since I am a regular user of Internet-based applications, it was expected for me to use IB so easily." **(V4)**

Also:

"In order to be ready to try this new method of banking, I need to be sure that it is in line and does not conflict with my existing beliefs and values. If it does

not contradict my values, then it would be easy to understand and then to use." **(V6)**

Figures 6-8 and 6-9 below show NVivo 11 findings relating to COMP.

Figure 6-8: NVivo Tree Node for COMP

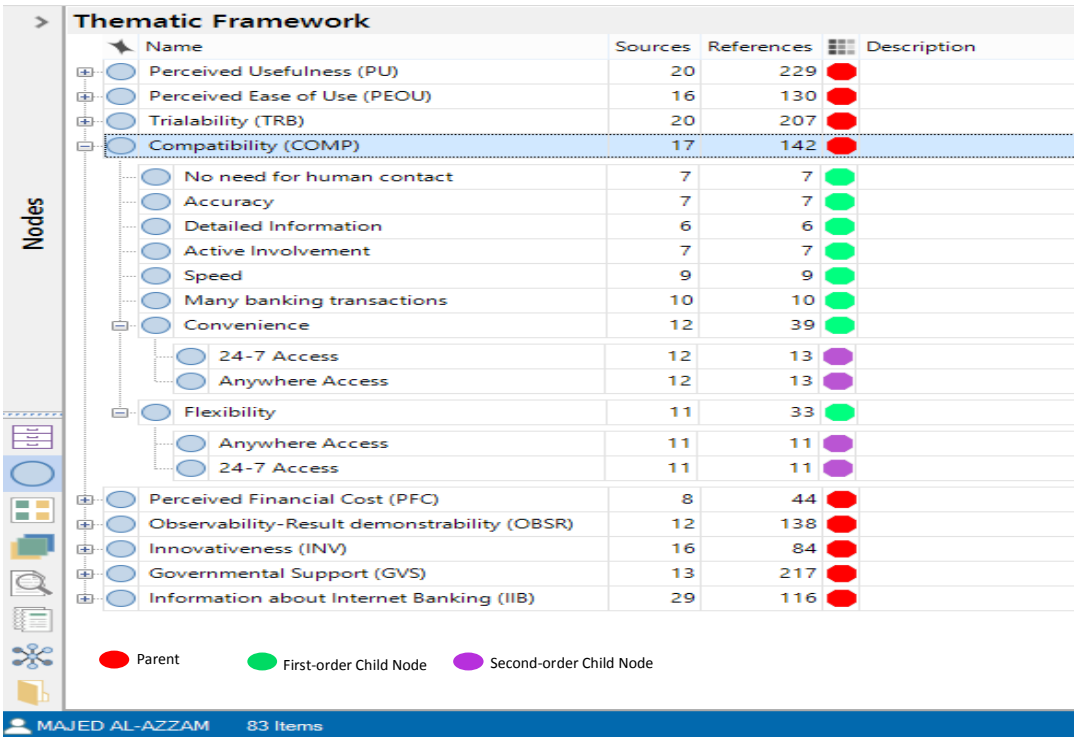
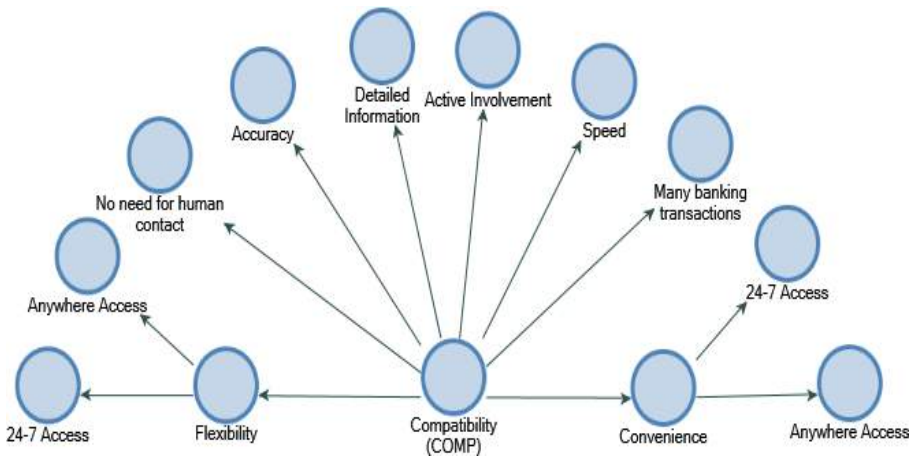


Figure 6-9: NVivo Visual Map for COMP



6.3.5 Perceived Financial Cost (PFC)

According to the quantitative data analysis in Chapter 5, PFC has no significant direct effect on customers' intentions to adopt IB services. Most interviewees considered the low costs of acquiring personal computers and establishing Internet connection in Jordan to be the reasons for this insignificant causal relationship. In this regard, interviewee **V4** noted:

> "*I did not consider IB related costs when I decided to switch to banking online. You know, the cost of having a computer or a laptop has decreased over the last ten years, I imagine that I bought my current PC for 80% less cost than my first one seven years ago. You know, also the cost of having Internet access in Jordan these days is 10-20 JD a month, which is reasonable and affordable by most people. Therefore, I don't think costs would be a barrier to adopt IB."* **(V4)**

In addition, **V5** added:

> *"Given that I believe I can afford to use IB, I don't care about costs as I do not believe that IB will help me a lot. It is a matter of benefits not cost."* **(V5)**

Therefore, it was concluded that due to its neglected effect on their intentions, costs would neither encourage nor impede customers from adopting IB in Jordan.

However, the majority of interviewees did not deny the indirect effect of these costs on their intentions through PEOU. They highlighted that the low costs associated with IB would facilitate the use of the service and make it less stressful to start banking online as it would not involve a complex cost decision-making process. For example, **V4** noted that:

> *"I really enjoy being able to access my accounts in one place easily from the convenience of my home. Yes, it is less costly than other options and I think that is what encouraged me at the first to try it. It cost me nothing to start using the service and it was easy to use. Being able to do my banking from anywhere in the world is completely great. It makes travelling for me so stress-free."* **(V4)**

The NVivo 11 results for PFC are shown in Figures 6-10 and 6-11 on the next page.

Figure 6-10: NVivo Tree Node for PFC

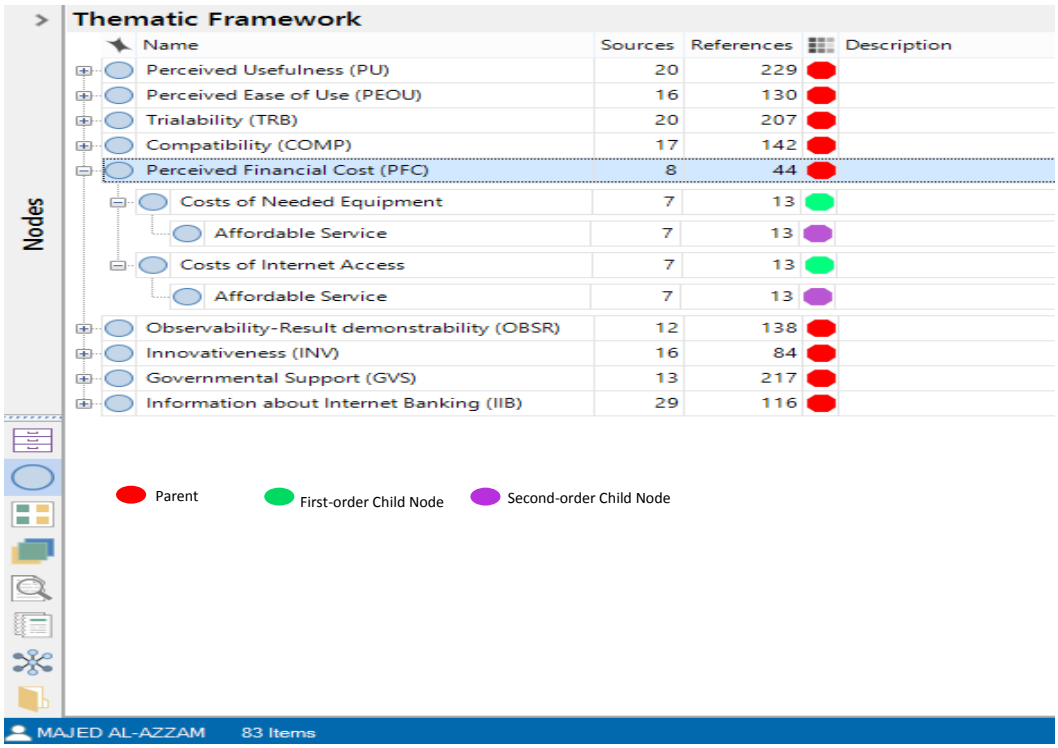
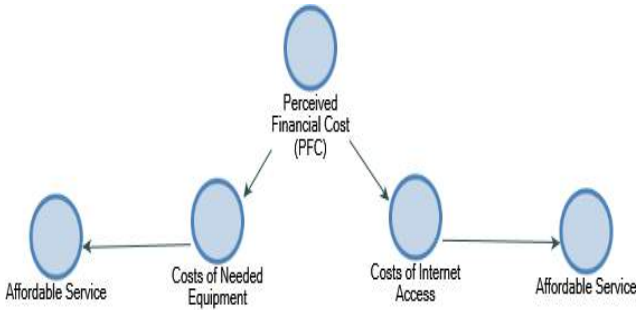


Figure 6-11: NVivo Visual Map for PFC



6.3.6 Observability-Result Demonstrability (OBSR)

OBSR was identified in the quantitative data analysis as a determinant of IB adoption in Jordan. Interviewees were, therefore, asked to give their opinion about how the communicability of IB services in their social context could influence their intentions to adopt these services. Several issues were raised, for example, some participants highlighted that OBSR reflects the fact that a special social status might be gained by using IB. They noted a general perception in Jordanian society that individuals who use IB are more educated, more civilised, and from the upper social

classes who usually enjoy using modern technologies. Hence, they believe the use of IB to bring social advantage to individuals, and that talking about their own IB experiences added social value to their lives, as one interviewee noted:

> *"Even though I am not an IB fan, I think it is a good idea to let others know that I am an IB user. In my opinion, it gives a kind of social status as it is a message that you are a civilised and well-educated person who is using hi-tech applications."* **(V5)**

Moreover, other participants indicated that communicating their experiences of using IB could play an important learning tool for them and others. Exchanging knowledge among friends and co-workers might be a good way to learn something new from others or even teach them how to use the service as one interviewee mentioned.

> *"As it is a new technology, I don't mind to tell others about IB. It is easy to explain to my friends how I perform it as well as why I do that. Due to the sensitivity of this matter, I prefer not to see others or be seen by them doing IB. However, I do not find it wrong to tell them about the results of my online transactions, as it will not cause harm for anybody. On the contrary, that may be useful for myself or others by sharing the knowledge about IB."* **(V3)**

Additionally, some participants declared that OBSR helped them to rationalise their decision about using IB, claiming that talking about their experiences in their social context made them more comfortable with their early decision to adopt IB. Moreover, they believed that it also eliminated their cognitive dissonance, as they were able to value the advantages of IB better when they spoke about it.

> *"I still remember my early days of using IB, I was so uncertain about that. But luckily, when I talked to my family and friends I felt much better as they liked what I did and they decided to try it later."* **(V1)**

Moreover, when participants were asked to comment on the insignificant causal relationship between OBSR and PEOU, they admitted that communicability of IB results was important for them as a learning process that may be translated after some time, not directly, to ease of use. However, the immediate effect may include exchanging knowledge about the different aspects of the service as well as enhancing their social image as declared by different participants.

> *"Actually I do find my IB results easy to explain to others, but I don't think that would make me feel it will be easier to use. Enhancing my social image may be a good reason for talking about that with others, but nothing about talking will make it easier to use for me. Bearing in mind its sensitivity and privacy nature, I will never discuss how I do my banking with others."* **(V2)**

Also:

> *"I don't find any difficulty in explaining to others why and how to use IB, that may help them in conducting their transactions and maybe make it easier for them to use the service, but not for me unless the conversation is all about that. I would not see it easier just because I talk about it. Instead, maybe I would feel better due to minimising any doubt I have about using the service."* **(V3)**

Also:

> *"I think it is not wrong to tell others about my IB results in general. Apart from any sensitive and private information, telling others about it may benefit both sides. Other people find it helpful for them to know different experiences and I find it helpful for me in a social manner as it satisfies some self-esteem needs for me."* **(V4)**

Figure 6-12 below and Figure 6-13 on the next page show the main aspects of OBSR as revealed by the qualitative data analysis.

Figure 6-12: NVivo Tree Node for OBSR

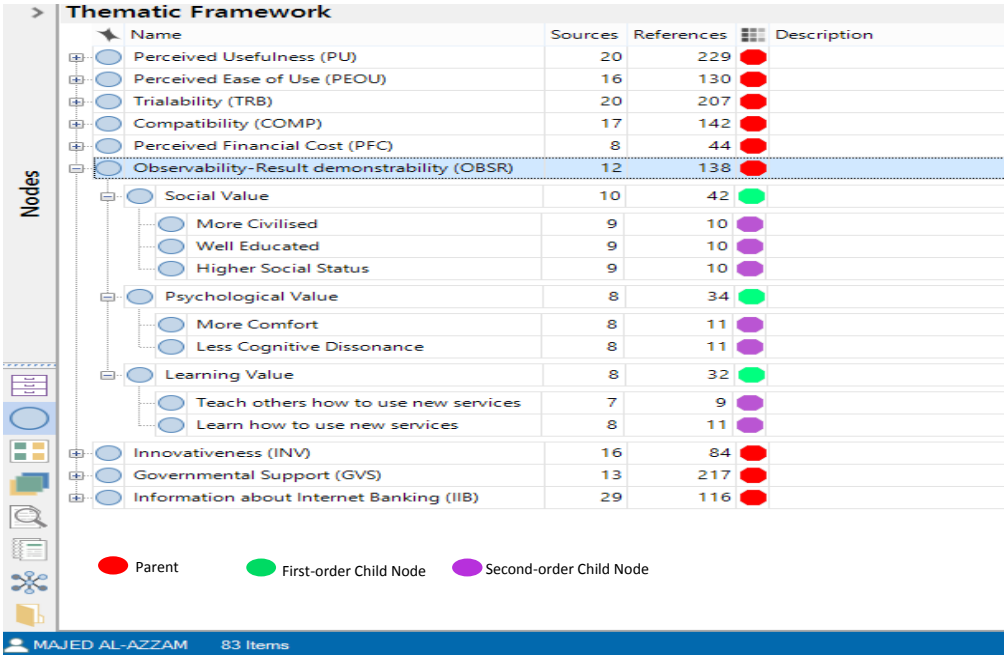
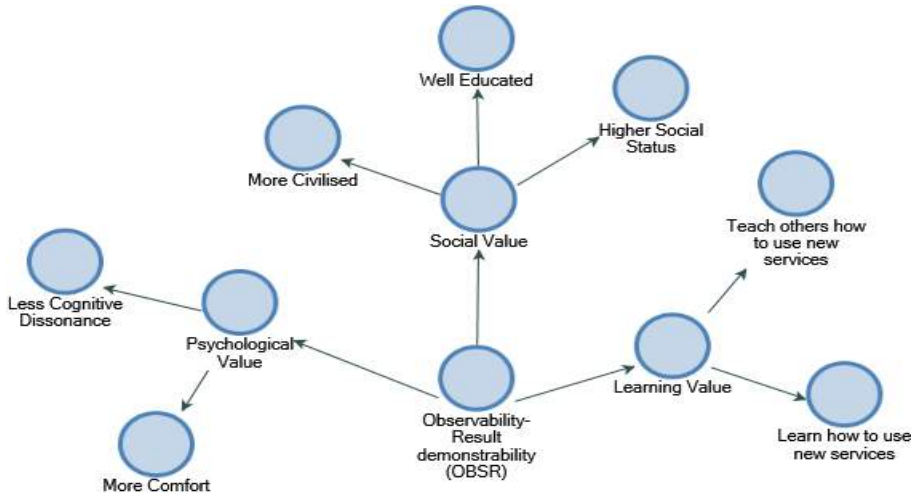


Figure 6-13: NVivo Visual Map for OBSR



6.3.7 Innovativeness (INV)

Among all other variables identified in this research, customer innovativeness had the most significant impact on the intention to use IB services in Jordan. The results reported in Chapter 5 also showed that the majority of the survey respondents were rated high in personal INV, confirming their strong tendency to explore and use new technologies including IB.

Interviewees' answers concerning how they perceived their personal INV might affect the decision to adopt IB led to some clarification and provided additional understanding of this variable's effect. The majority of them believed that innovative people are generally ready to use new technologies more than others, and that young and well-educated individuals are more innovative than other individuals in their social context. These people are usually exposed to various types of new technology and often required to use them in their daily lives. Hence, they are assumed familiar with the potential of these technologies, and usually more open to try new banking methods such as IB.

> *"It was natural for me to accept the idea of going online to fulfil my banking needs as everything is pretty much electronic nowadays. We have to use many information technologies in our daily lives these days. Let us be honest, if we do not use some technologies it would be difficult to cope with our complicated and modern life. Actually, I believe that young people are more prepared for using different types of innovation than older individuals as they are being taught that in their early years of school."* **(V1)**

Moreover, some participants noted a relationship between being innovative and the need for easy and convenient services. They claimed that innovative people usually required another level of service delivery, as they are enthusiastic and generally keen to find out what would be more efficient for them in terms of time and effort. It was commonly believed among participants that innovative individuals' ability to accept a particular level of uncertainty makes them more excited about new ideas and products; therefore, they are able to identify the usefulness of new technologies earlier than others.

> "*IB as a new idea is very suited to me. I have been used it for years, never had a problem. It saves me a lot of time as well as a huge effort. It does everything I need it to do, is more convenient than paper statements or going into the bank branch. With such a busy life, I don't usually have much time or effort to drive to my local bank whenever I need to do my banking."* **(V3)**

Also:

> "*In fact, I have been to my local branch only a few times in last couple of years, thanks to ATMs and IB. Usually I like to be updated with the latest technology wherever, in my opinion, the technology comes to serve us better than before; therefore, we should be more open to these new ways of doing things."* **(V1)**

Additionally, participants highlighted that innovative people are more likely to find IB as a new technology easier to use and less complicated than other less innovative individuals. They justified their beliefs by referring to innovators' familiarity with modern technologies, which results in them needing less time to learn the required procedures and to know how to complete IB transactions. For example, one IB user commented:

> *"As I told you, during my daily life, I used to use technology a lot. I like to explore any new technology, as I believe it was invented in the first place to make our life easier. Therefore, I think IB is one of these technologies that we have to try widely as it might be convenient and much easier to use than other banking methods. Therefore, yes, I find it easy to use this application."* **(V4)**

Another user also mentioned that, saying:

"When talking about new innovations, you will find me at the front of any queue in order to try it. I do not care if it is difficult to use since I believe that would be my feeling for the first time and after that it will not be difficult anymore. I believe in my capabilities and ability to learn even with most complicated technologies." **(V3)**

Finally, a non-user participant revealed:

> *"It is true that I am not an IB user, but I think I can tell you that I am a modern girl who enjoys the new technologies and innovations. Yes, it is not difficult to*

deal with IB for me since I always like to explore new ways of doing things and I am totally familiar with many types of IT." **(V6)**

Figures 6-14 and 6-15 below summarise the main findings of the qualitative data analysis regarding INV.

Figure 6-14: NVivo Tree Node for INV

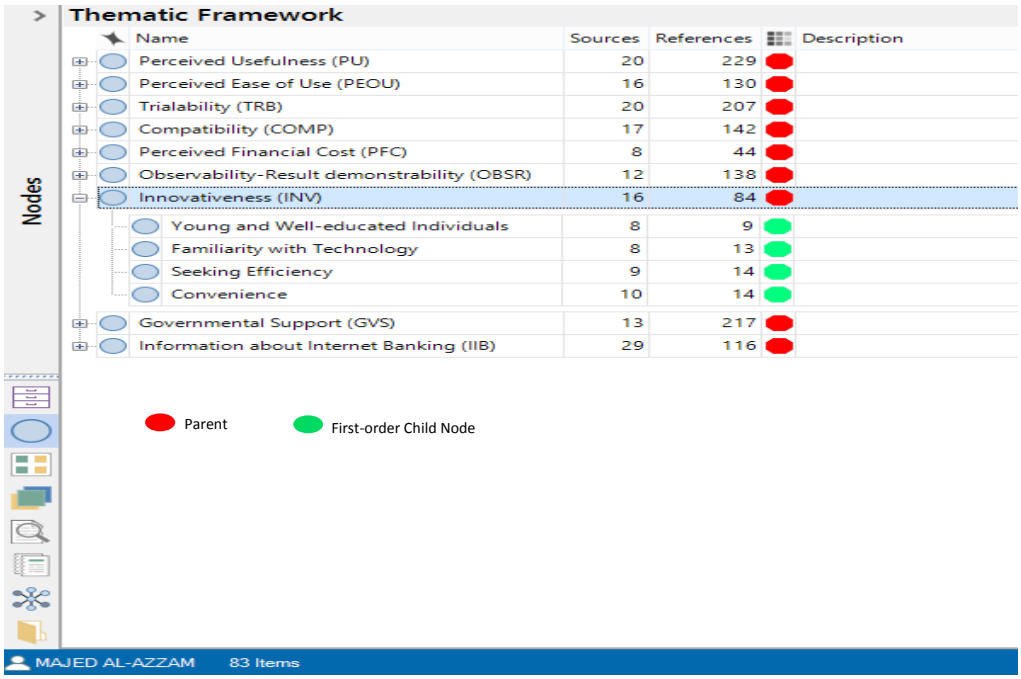
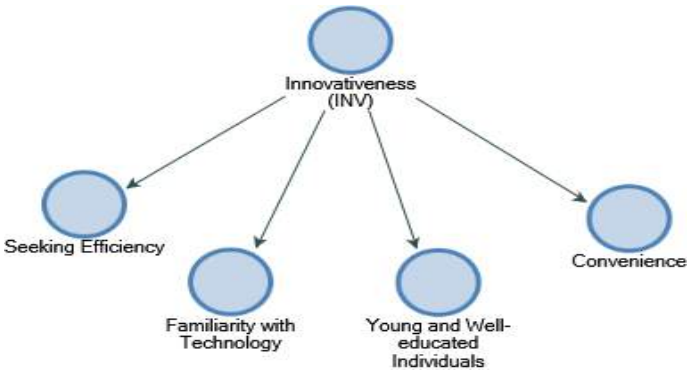


Figure 6-15: NVivo Visual Map for INV



6.3.8 Government Support (GVS)

GVS was also identified as a determinant of IB adoption in Jordan, so in order to provide more understanding about the government role in enhancing customers' intentions to adopt IB, further clarification was sought from interviewees, who all emphasised the importance of government involvement in promoting and fostering

the effective implementation of IB. Interviewees mentioned the importance of government policies and regulations in protecting customers and making the Internet a sage medium for conducting bank transactions. Many of them highlighted the legal protection of customers as a major concern in the issue of IB; hence, an appropriate legal framework is essential to build trust in this new banking channel.

> *"One of the first things I considered when deciding to use IB was whether I would trust it or not as a way of doing my finance? Would it be safe? What if something goes wrong and my bank will not admit that? What should I do? Answers to all these questions were so simple "the government is aware about it and backs up its applications". Indeed, I became more confident when I knew that our government is supporting IB practices in Jordan."* **(V1)**

Interviewees also agreed that the Jordanian government has provided support for IB by introducing several laws to regulate the process of IB by commercial banks. These laws cover matters such as security of payments, money-back guarantees, and personal privacy.

> *"In my opinion, government support is crucial in order to establish trust and credibility in IB. Since I believe that the Jordanian government has done everything needed to support IB, I do my IB with full confidence that I am safe and secure even if anything goes wrong."* **(V4)**

Also:

> *"The government policies that are being developed to manage IB in Jordan would influence me when I start thinking about using such services. As a bank customer, I should be confident that my personal data is being adequately protected. In general, I believe that the Jordanian government has established the appropriate laws in order to ensure that my bank provides the maximum protection possible."* **(V2)**

Another issue raised by participants regarding GVS was the role of the government in providing the appropriate technical infrastructure including the cost and quality of the Internet connection, and the cost of computers, and other essential equipment. They noted that a good quality Internet connection at a reasonable price would make IB a convenient and useful way of banking.

Moreover, some interviewees acknowledged the importance of regulations imposed by the CBJ (Central Bank of Jordan) to ensure proper co-ordination among banks providing IB services in the country. These regulations were believed by interviewees to result in greater service quality and improved customer trust in their banks.

Figures 6-16 and 6-17 below highlight the various issues mentioned by participants regarding GVS as well as their related results from the data analysis.

Figure 6-16: NVivo Tree Node for GVS

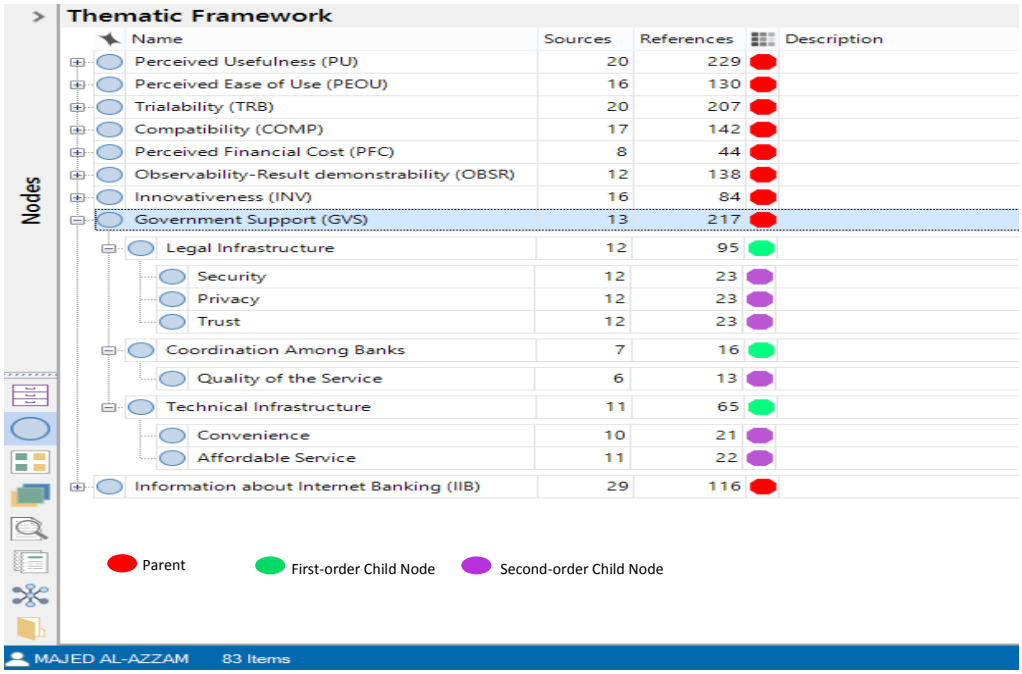
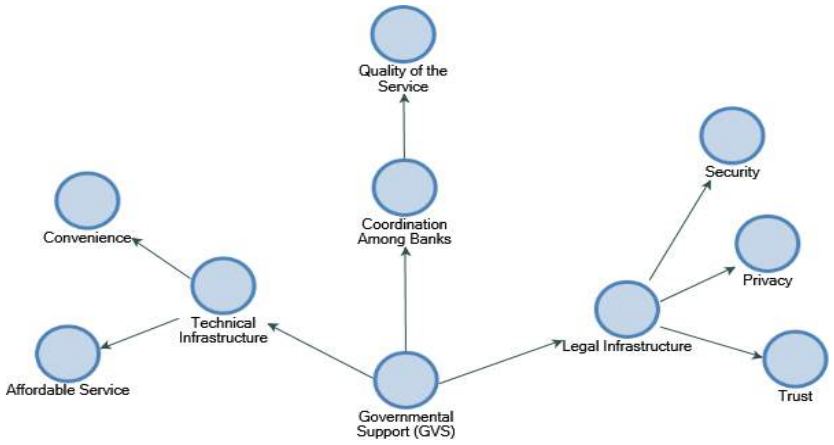


Figure 6-17: NVivo Visual Map for GVS



6.3.9 Information about IB (IIB)

The quantitative data from the questionnaire survey suggested that customers with adequate awareness of IB and its related benefits are more likely to accept and use it than other customers. Surprisingly, most interviewees believed that they did not

receive sufficient information about IB and its benefits from their banks, considering the banks' promotion of the service as poor. Indeed, some interviewees were completely unaware of what they should do in order to start using the service. They also considered the lack of awareness about the service to be an important reason for the low adoption rate of IB in Jordan, since many people remain ignorant of how to use the service, and are uninformed about its relative advantages over other banking options.

> *"My bank had never told me about IB before. I just knew about it from my friend. I wish I had all the needed information from my bank first; it will be easier for me to start using it. I am happy conducting my finances online, but really need to be updated with everything about IB."* **(V4)**

Moreover, according to some participants, trust and confidence in IB services could be improved by spreading awareness among customers. They believed that banks should encourage customers to go online by offering appropriate introductory training for IB. One non-user claimed that he might be using IB if he had been offered such training, saying:

> *"Actually I don't know much about IB possibilities, advantages, and disadvantages. I think my bank is responsible for that; they should sell their products, shouldn't they? Who knows, if the picture become clearer and I have enough information, I might try it."* **(V5)**

Some participants highlighted the need for sufficient information about IB in order to make customers comfortable with their online transactions. They claimed that many people perceive it as risky, and have privacy and safety concerns they want to be addressed before taking a first step towards using the service.

> *"It was nice to be informed by my bank about this new banking method. I think being equipped with the required information is essential in order to perform IB successfully and safely."* **(V3)**

On the other hand, interviewees were asked about the insignificant influence of the IIB on both PU and PEOU. For the first effect (IIB on PU), they agreed that while having enough information about the service was important, they might still decide that the information provided did not persuade them.

> *"My bank did not provide me with enough information about IB, but when I asked for it I found what I sought. I use IB since I believe it is the best banking option for me compared with traveling to my local bank. Knowing more about it helped me to find that result but did not create the need for it."* **(V1)**

Also:

> *"Do not tell me that I would see IB more useful if they told me more about it. Nobody will make it useful for you if you do not believe that from the beginning. It is great to have full information before even trying to use the service that would let you know if it is worth trying or not."* **(V5)**

Regarding the insignificant effect of IIB on PEOU, many interviewees mentioned that the personnel in their banks provided them with very little information about IB and when they did ask questions, further queries; the staff were unable to provide answers as they did not possess the required information themselves and did not fully understand how IB works.

Therefore, these interviewees were clearly unable to evaluate the impact of this kind of information on IB PU and PEOU.

> *"In my opinion, it is essential that your bank provides as much as possible about IB, but unfortunately that was not the case with my bank. Therefore, do not ask me if it will be easier for me or not, they did not give me the chance to judge."* **(V2)**

One user claimed that it would not necessarily be easier to use IB if he had more information about it since that information might not be appropriate to the issue of how to actually perform IB transactions.

> *"Promotional material such as flyers, brochures leaflets, and e-mails would be useful to educate us as customers about the advantages and how to use IB in general. I did not find it easy to use for the first time even though I had the required information. I think that was due to some technical issues that I had, but fortunately everything went smoothly."* **(V1)**

Figures 6-18 and 6-19 on the next page summarise the data analysis for IIB.

Figure 6-18: NVivo Tree Node for IIB

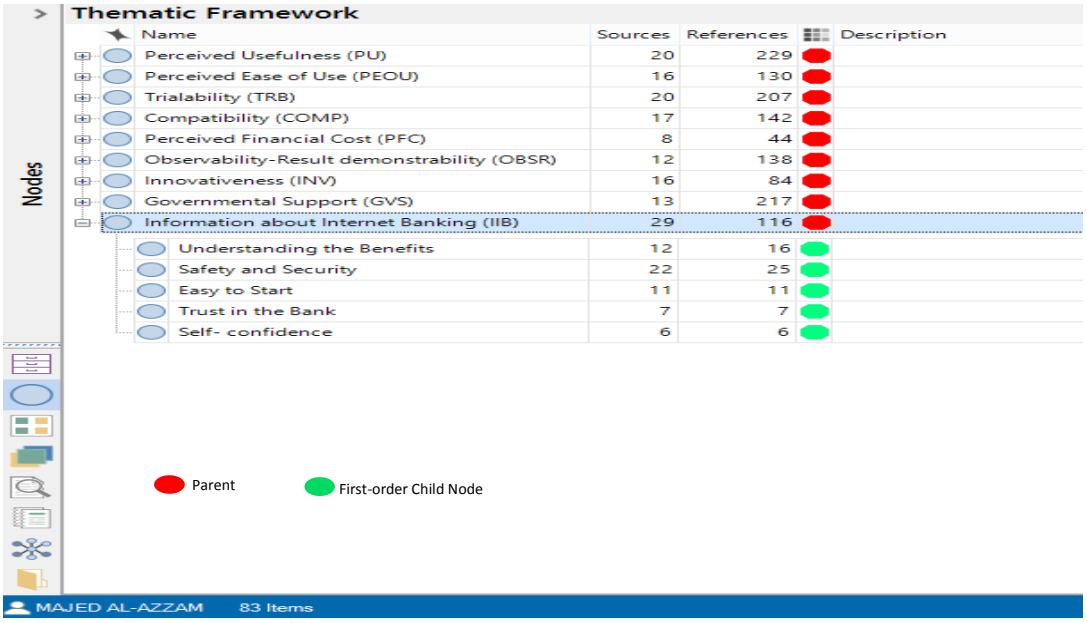
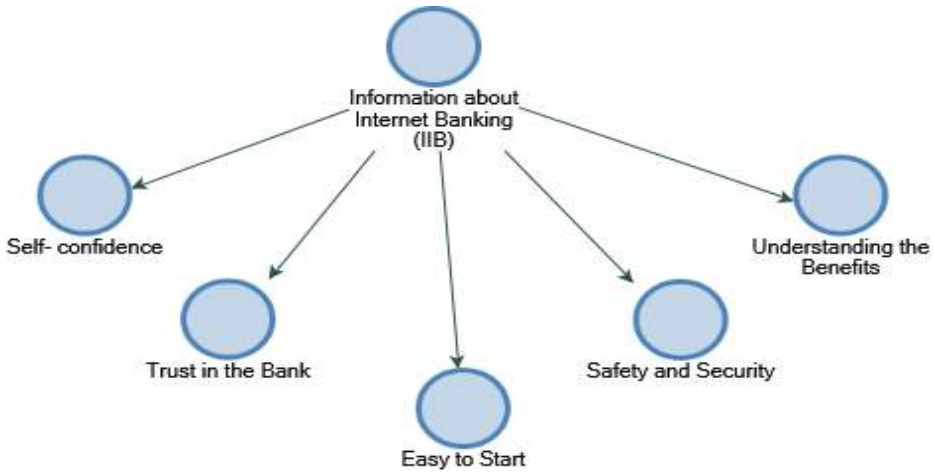


Figure 6-19: NVivo Visual Map for IIB



6.4 Interviewees' Explanations about Accessibility (ACC) Hypotheses

As mentioned earlier, explanations were sought from interviewees about seven hypotheses that were insignificant as revealed by the quantitative data analysis, and were thus excluded from the final model.

Five of those hypotheses have been discussed in section 6.3 as they were related to the final model variables. However, since ACC was excluded from the model, the

two hypotheses that related to this variable remain unconsidered, and are now discussed.

Firstly, interviewees were asked why they thought accessibility to the required resources for IB was not considered an important variable that directly influences customers' intentions to use these services in Jordan. Their responses revealed that since the cost of having a personal computer and establishing a quality Internet connection in Jordan are considered reasonable and affordable, gaining access to these resources would not necessarily affect people's intentions to use IB.

Most interviewees highlighted that being Internet users for a considerable period of time would not necessarily motivate them to try the new technology under consideration. However, some stated that less accessibility would be a barrier rather than a motivator for using IB. It was thus concluded that limited customer access to IB resources would impede intention to adopt, but that the opposite is not true since high levels of ACC would not encourage customers to switch to IB. For example, two IB users commented:

> *"I have been using the Internet for ten years now and this doesn't necessarily mean that I have decided to use IB because I have Internet access. It is more complicated than that. It was a matter of what I will gain and how it is useful for me. Let me tell you that, if the opposite is true, it means if I do not have that level of access to the Internet, it will be difficult for me to use IB. Therefore, I think Accessibility is pre-requisite more than motivator."* **(V1)**

Also:

> *"I have had Internet-equipped computers both at my work and my home for a long time. Therefore, being able to do IB did not encourage me to bank online, it was the second issue to think about when I started my first IB experience three years ago, the first one was how useful and beneficial it is for my financials."* **(V4)**

In addition, one non-user noted:

> *"Why to change something when it is not broken? Walking into any branch and I am certain to get outstanding customer service. Despite the fact that I am an active Internet user for a long time, I did not see that was relevant when I decided not to use IB services."* **(V6)**

Interviewees were also asked about the insignificant effect of ACC on PEOU of IB in Jordan. Most felt that easy access to IB would not make them perceive these services to be easier to use, since access did not feature in their decision-making in

this respect. The following comments confirm the views of **V5**, **V3**, and **V2** commented on this matter.

> *"As I told you before, using Internet for a long time does not necessarily mean you will use IB. It is a more complicated decision. I have had a quality Internet connection and a laptop for a long time now, but absolutely that does not affect my decision at all. Using the Internet is something and IB adoption is something else, it involves much more than these technical issues."* **(V5)**

Also:

> *"I agree with you that Internet access and other machinery are prerequisites for IB, but having them in hand doesn't necessarily mean that IB is easy to use or even make it so."* **(V3)**

Also:

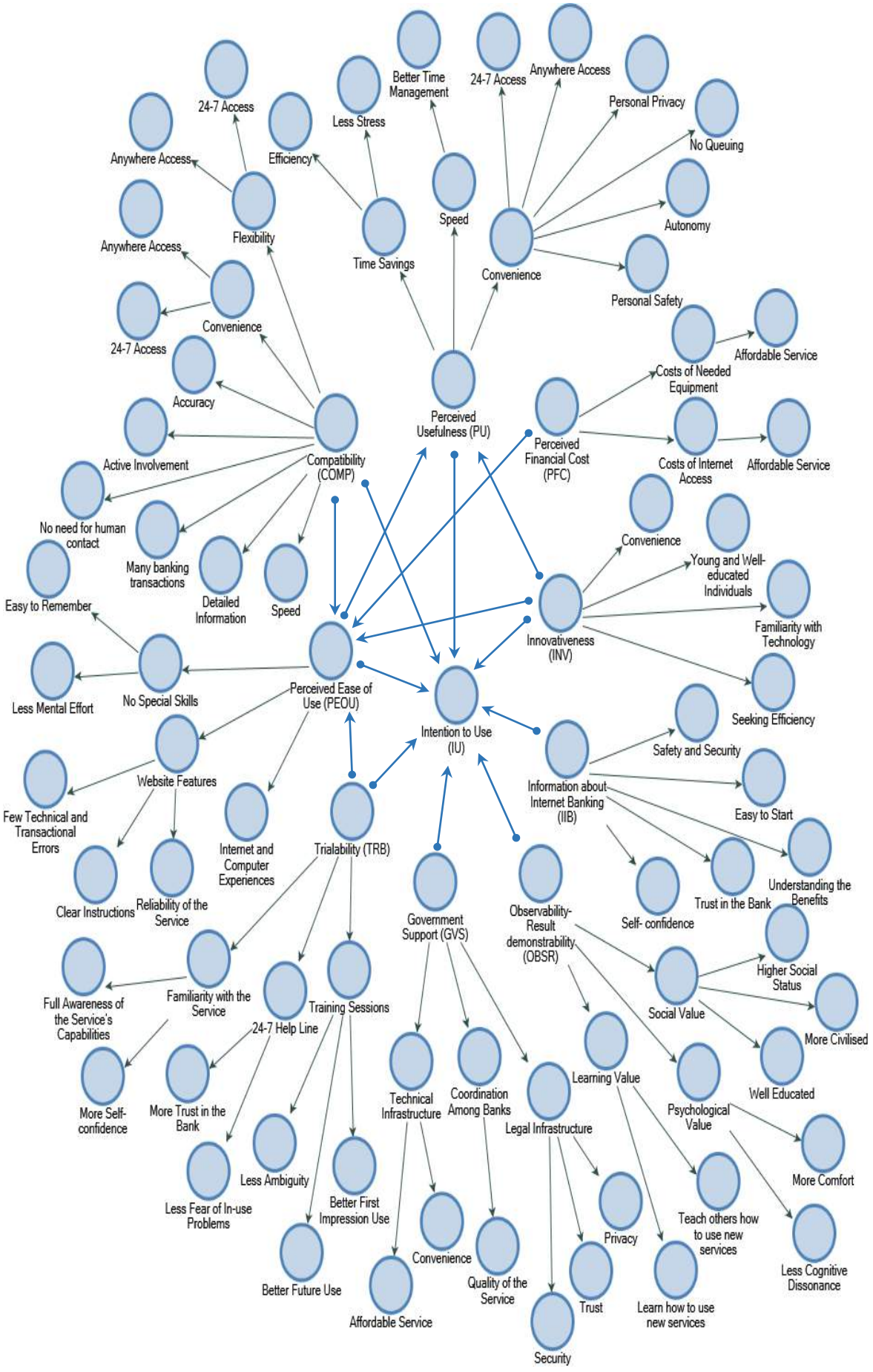
> *"Why do you think ease of access to the Internet will make it easier to use IB, I think it is a matter of cost-benefits-analysis not if I can do it or not."* **(V2)**

6.5 Qualitative Data Findings and the Final Research Model

The mixed-methods approach to data collection in this study produced two types of data; quantitative data gained from the survey questionnaires, and qualitative data obtained via the semi-structured interviews. The former was used to test the proposed research model and to confirm the research hypotheses, while the latter were used to provide further confirmation of the research model and hypotheses and to improve the understanding of the findings from the quantitative element. Data from both aspects of the empirical work were incorporated into the final research model (Figure 6-20 on the next page).

It can be seen from Figure 6-20 that the quantitative data analysis has provided a much clearer picture of the reality of customers' adoption of IB in Jordan. Moreover, the integration of quantitative and qualitative data has extended our understanding and provided valuable insights regarding how customers perceive different variables that have been identified as important for IB adoption in Jordan. In short, the findings from the semi-structured interviews have provided additional support as well as revealing important insights underpinning further interpretations of the quantitative data.

Figure 6-20: Qualitative Data Findings Integrated with the Research Model



6.6 Summary

This chapter reporting on the qualitative phase of the study has complemented the findings from the quantitative phase, by exploring the perceptions of users and non-users of IB services regarding these services. Hence, the chapter has provided a summary of the qualitative findings, obtained from six interviews with three IB users and three non-users. Since the purpose of the semi-structured interview exercise was to explore specific aspects that had already been highlighted in the questionnaire survey, six interviews was believed to be sufficient.

In relation to the interviewees' perceptions of the factors influencing the adoption of IB services in Jordan, it was seen that the majority of interviewees confirmed the findings of the questionnaire, although differences were noted. Interviewees' explanations were also sought about the outcomes of the research hypothesis testing, irrespective of whether these hypotheses were accepted or rejected. Finally, in order to complete the picture and to give a full understanding of the phenomenon under consideration, the interview findings were incorporated in the final research model to provide a fully comprehensive framework for understanding the potential to adopt IB in Jordan. The next chapter presents a detailed discussion of both the quantitative and qualitative findings in the light of the literature reviewed in Chapter 2.

Chapter 7: Discussion

7.1 Introduction

This chapter provides an interpretation of the research findings (both quantitative and qualitative) presented in Chapters 4, 5, and 6. The discussion links these findings to those from prior research work considered in Chapter 2, and concentrates on how these findings provide answers to the research questions, and in turn, meet the objectives of the study. Each section in this chapter deals with one of the main research objectives presented in Chapter 1. Having presented the findings in respect of all the objectives, the chapter concludes with a short summary.

7.2 Research Objective 1

As outlined in Chapter 1, the first research objective aimed to identify the factors affecting customers' intentions to adopt IB services in Jordan and to reveal the causal relationships among these factors. In order to achieve this objective, two research questions were formulated as follows:

- **Research question 1**:

  "What are the factors influencing customers' intentions to adopt IB services in Jordan?"

- **Research question 2**:

  "How the factors that influence customers' intentions to adopt IB services in Jordan are related to each other?"

In order to answer these two questions and as a result of reviewing the technology acceptance literature, twenty-one hypotheses were constructed for testing using SEM (see Chapter 2). Ten of these twenty-one hypotheses (H_{1}, H_{2a}, H_{3a}, H_{4a}, H_{6a}, H_{7a}, H_{8a}, H_{9a}, H_{10}, and H_{11a}) aimed to test the direct influence of independent variables on the research dependent variable (IU). The remaining eleven hypotheses (H_{2b}, H_{3b}, H_{4b}, H_{4c}, H_{6b}, H_{7b}, H_{7c}, H_{8b}, H_{9b}, H_{11b}, and H_{11c}) were developed to test the influence of independent variables on each other.

7.2.1 Research Question 1

Based mainly on two commonly applied models in technology acceptance literature, the TAM proposed by Davis (1989), and the DIT introduced by Rogers (1983), the

study examined the factors influencing Jordanians' intentions to adopt IB services. After an extensive review of the related literature, several factors that were theoretically justified to be important in the technology acceptance context were incorporated into the proposed model presented in Chapter 2. Eleven factors were originally proposed to influence customers' intentions to adopt IB. These factors were classified into three main categories based on the nature of their influence: technology-related factors, user-related factors, and external environment-related factors. Technology-related factors represent features and characteristics of the IB technology that have also influenced IT acceptance and IB adoption decisions. These factors were originally obtained from both the TAM and DIT frameworks. While PU and PEOU represent the original TAM constructs, COMP, TRB, OBSV, and OBSR were applied from the DIT framework. User-related factors represent different aspects of the individual's characteristics, ACC, INV, and PFC. External environment factors are represented by GVS and IIB, both of which have been found to affect the acceptance of new technologies in different nations over the years. Hence, they were theoretically assumed to have such influence on Jordanians based on contextual similarities.

Later, EFA using SPSS 22 and SEM using AMOS 22 were employed to analyse the quantitative data, and NVivo 11 was used to analyse the qualitative data. EFA was adopted to determine the possible underlying factor structure based on the observed variables that were included in the present study questionnaire. CFA was used in verifying and confirming the factor structure derived from the EFA, and to assess construct validity and composite reliability for the researched factors. Furthermore, SEM was also used to test the hypothesised causal relationships among the different research variables. An eleven-factor structure was identified via the EFA. The results of factor analysis can be found in Table 5-2 on page 151. However, it is worthy of mention here that since the extraction values of OBSV1 and OBSV2 were both below the recommended factor loading cut-off value of 0.6, they were dropped and hence excluding OBSV from any further analysis. The resulting eleven-factor solution was found to explain 86.6% of the variance in the dataset. Table 7-1 on the next page shows these eleven factors as identified by EFA.

SEM was subsequently applied in two steps, the first step involving confirmation of the EFA results, and a check on the related validity and reliability, and the second,

the testing of the research hypotheses concerning the causal relationships among these factors.

Table 7-1: Factors Resulting from the EFA

Factor	
One	**Perceived Usefulness (PU)**
Two	**Perceived Ease of Use (PEOU)**
Three	**Trialability (TRB)**
Four	**Accessibility (ACC)**
Five	**Government Support (GVS)**
Six	**Information about Internet Banking (IIB)**
Seven	**Perceived Financial Cost (PFC)**
Eight	**Compatibility (COMP)**
Nine	**Observability-Result Demonstrability (OBSR)**
Ten	**Intention to Use (IU) ***
Eleven	**Innovativeness (INV)**

* Dependent variable.

7.2.1.1 Intention to Use (Dependent Variable) - Factor Ten

Intention to Use IB services was considered as a dependent variable and measured by four items (IU1, IU2, IU3, and IU4). It was found that the four observable variables used to measure IU were loaded highly on factor ten and were highly correlated to each other. Moreover, it was indicated that factor ten alone explained 1.25% of the total variance in the empirical data.

The assumed underlying structure of this factor was confirmed by EFA, and later by the CFA results. The average mean score for IU measurement items was 3.7, which is above the scale midpoint (3), showing clear agreement among respondents on their intentions to use IB in the near future. Based on the modification indices analysis in CFA first-run, IU3 was dropped to improve the measurement model's explanatory power. CFA results also provided statistical evidence of both construct validity and composite reliability for the IU construct.

7.2.1.2 Factors Influencing Customers' Intention to Adopt (Use) IB

While ten factors were originally assumed to have direct influence on customers' behavioural intentions to use IB services in Jordan, only eight of them (PU, PEOU, TRB, COMP, OBSR, INV, GVS, and IIB) were empirically proved as significant, since PFC was found to influence IU only indirectly through PEOU, and ACC had no significant effect.

1. Perceived Usefulness (PU) - Factor One

Strong agreement was found among respondents towards the usefulness of IB in terms of effort and timesaving as well as enhancing their overall banking activities. These results may suggest that when compared to traditional banking methods, IB was perceived more useful and more beneficial for the respondents.

It was also found that the six observable variables used to measure the PU construct were loaded highly on factor one and were highly correlated with each other. Moreover, factor one alone explains 35.2% of the total variance in the data. Additionally, CFA results revealed that PU construct to have a high composite reliability coefficient and a high level of construct validity (convergent, discriminant, and nomological). Regarding the influence of PU on IU, the preliminary research model anticipated that PU would have a positive influence on IU. Therefore, hypothesis H_1 was formulated and further tested by SEM. The results of testing this hypothesis revealed that the causal path between the two constructs was significant at a level of $p < 0.001$. Consequently, this result provided no support for (fail to accept) the null hypothesis leading to accept the alternate hypothesis which states that PU does positively influence IU.

Hence, PU appeared as a major determinant of customers' behavioural intentions toward the adoption of IB. So, to be accepted by customers, IB should be perceived to provide more advantages in terms of productivity, performance, and effectiveness in conducting banking transactions than conventional banking methods. It is thus believed that any increase in PU would positively influence customers' intentions towards using IB services.

Furthermore, the results of the semi-structured interviews also supported PU to be an important factor influencing IB adoption. Many interviewees admitted that their

perceptions of IB usefulness and relative advantages had influenced their choice of banking method. Users were easily able to recognise the benefits of IB such as the ability to check their bank balance and statements, pay bills, transfer funds between accounts, and communicate securely with the bank by sending and receiving messages. Moreover, interviewees commented on PU in terms of convenience, timesaving, and the speed offered by the service. They considered IB should be accessible at anytime from anywhere, safe, protect the individual's privacy, and allow the customer to complete banking transactions easily. Such a model was believed to be less stressful and enhance customer lifestyles through timesaving. In this connection, the actions involved in IB were perceived as being quick to perform, also contributing towards customers' time management efforts.

These results are consistent with findings from prior research. For example, the PU findings support those by Davis (1989), Venkatesh and Davis (2000), and Tornatzky and Klein (1982) who all propose PU as an important determinant of IT acceptance. This study's results are also consistent with previous findings that validate the importance of PU as a key determinant of consumer acceptance of IB in particular. For example, Kolodinsky et al. (2004) found that US bank customers were more likely to adopt IB when they had more positive perceptions about the advantages to be gained from using such banking technology. They also found that IB was perceived advantageous by customers since it can result in timesaving and convenience, and in decreasing the possibility of errors associated with traditional banking such as lost cheques, missed appointments, and inaccurate accounting practices. Pikkarainen et al. (2004) found that PU was among factors that significantly influenced the acceptance of IB by customers in Finland; they indicate that customers use IB because of its benefits over other banking delivery channels.

Ndubisi and Sinti (2006) also reported that PU was significantly associated with adoption of IB services in Malaysia. They concluded that individuals who perceive IB as useful in satisfying their banking needs (personal control of financial activities, convenient channel for monitoring accounts) are more promising IB prospects. Ozdemir and Trott (2009) reported that several components of IB usefulness were identified as the most significant factors facilitating the adoption of the service in Turkey.

Results from semi-structured interviews in their research indicate that time-savings,

fast service, cost savings, instant access, opportunity cost savings (that is, more time for work), and convenience were observed as the most important facilitators for IB adoption. In addition, IB was perceived by interviewees in their study to be the most timesaving channel compared to other banking channels. According to them, timesaving occurs through the non-requirement to wait in long queues or to deal with unnecessary bureaucracy in the bank branches, to wait on the telephone, or to find an ATM.

In practical terms, these results provide managers information about the successful planning and implementation of IB services. For example, banks in developing countries can focus on service differentiation to make their services more useful than their competitors. Service providers could emphasize more on the most wanted IB services by customers. Additionally, system designers of IB should carefully consider the needs of potential users and ensure that the systems effectively meet their personal and banking needs. This might raise new technology's usefulness especially if the banks promote the above IB advantages as perceived by customers when compared to traditional ways of banking.

Moreover, banks should focus more in their advertising on informative issues in their advertisements by educating customers about the importance and advantages of using IB in banking and their financial transactions. Hence, directing their future marketing efforts towards highlighting the benefits IB adoption provides. Banks could also attract more online customers by focusing on developing more convenient, speedy, and efficient IB websites.

2. Perceived Ease of Use (PEOU) - Factor Two

The mean score results of the six observable items used to measure PEOU revealed that respondents agreed that IB services are easy understand, learn, and use. EFA results also revealed that these measurement items were exclusively loaded on factor two and were highly correlated to each other. Factor two alone explains 9.25% of the total variance in the data. Additionally, the CFA results for PEOU showed a high composite reliability as well as a high level of construct validity.

As shown in the final research model in Chapter 5, PEOU was shown to influence customers' intentions to adopt IB. The outcome of SEM in hypothesis testing

revealed FTA (Fail to Accept) the null hypothesis where $p < 0.05$, therefore, infers support for the alternate hypothesis (PEOU positively influences IU*).* Thus, empirical evidence is provided of the role of PEOU in shaping customer intentions to adopt IB and in explaining the adoption of new technologies in general.

Interview results also provide support for the notion that PEOU is an important predictor of intention to adopt IB. Interviewees commented on the need for IB to be user-friendly in terms of the required skills, Internet and computer experience, and navigation of the IB website. They outlined that the service would be easy to use if it did not demand special technical skills, and could be performed by following straightforward procedures with minimum mental effort. Moreover, an easy-to-use IB website was identified as an important aspect of PEOU. Hence, a reliable website with clear instructions and minimum level of technical and transactional errors was considered essential in order to promote user-friendly IB service.

Practically speaking, it is important for banks in Jordan to take special care about what IB services customers would perceive as easy to use. Therefore, in designing and promoting IB services to customers, banks should emphasize the ease of use of this technology in performing banking tasks. In other words, the challenge for any IB application design would be to make it as easy to use as possible in terms of website features and the level of skills needed to perform a particular banking transaction. As a result, this PEOU design philosophy should shape any IB design and marketing efforts.

Moreover, these results concur with previous research findings. For example, Davis (1989) argued that when users of a particular IT perceived it less difficult than another application, they would be more likely to accept it. He considered PEOU as the assessment of psychological and mental efforts exerted by individuals when dealing with the new technology. In the context of IB, Wang et al. (2003) reported that, among other factors, PEOU had the greatest positive impact on intention to use IB applications in Taiwan. They indicate that customers' computer and Internet skills shape their PEOU of IB, and thus recommend banks to organise Internet and computer training sessions for customers to enhance the service's PEOU, and thus secure better adoption rates.

Ndubisi and Sinti (2006) found that the COMX of IB services negatively influenced its adoption by Malaysian customers; they also concluded that user-friendly IB

services are accepted better by customers. They define less complex and easy-to-use services as those not requiring much mental and physical effort, and they emphasise the importance of website features in creating IB acceptance among Malaysian bank customers. Based on their recommendations, features such as easy-to-read instructions, interactivity, prompt processing of transactions and customisation are among other important characteristics that every bank should ensure within their websites.

3. Trialability (TRB) - Factor Three

The EFA results revealed that four measurement items were highly loaded on this factor (TRB1, TRB2, TRB3, and TRB4). Mean scores for these items lay between 3.77 to 3.82 reflecting an agreement among the respondents regarding the use of IB on a trial basis before deciding whether to adopt the service. Hence, the opportunity to experiment with IB prior to committing to its formal usage increases the likelihood of adoption. Factor three was found to explain 7.23% of the total variance in the data. The CFA results reported acceptable construct validity and a high level of composite reliability.

In the current research model, hypothesis H_{3a} proposed that TRB and behavioural intentions of bank customers towards using IB services are positively related. SEM path analysis results failed to reject this proposition, which infers support for the alternate hypothesis (TRB positively influences IU). This suggests that the more bank customers are allowed to try IB in advance, the more positive will be their intentions toward its adoption. This might be justified by customers' desire to minimise uncertainty about the service through the test-drive experience.

The qualitative data also revealed TRB as a significant predictor of customers' intentions to adopt IB. All interviewees agreed on the importance of the opportunity to try the service before formal adoption, indicating that many benefits, such as enhanced trust and confidence in the bank as they became more knowledgeable about the service, could be achieved by this. Moreover, they believed that a trial would lead to better future use since their concerns about initial errors would have evaporated. A free 24/7 help line service and training sessions for IB customers in order to promote the benefits of the service and encourage customers to try the service without obligation, were recommended.

These findings support earlier research outcomes on IB adoption. For example, Tan and Teo (2000) found the opportunity to try IB services increased the chance of adoption by customers in Singapore. They found that potential IB users who were able to experiment with the service came to understand the service and feel more comfortable with it as their fears were removed. Ndubisi and Sinti (2006) also reported that among other influential factors concerning IB adoption in Malaysia, TRB had a strong influence on customers' intentions in this respect. Likewise, Gounaris and Koritos (2008), found the same outcome in Greece, where uncertainty fears and usage-related anxiety were seen to diminish with the opportunity to trial IB. In addition, Al-Ajam and Nor (2013a) empirically ascertained TRB as an important determinant of customers' adoption of IB in Yemen, as it reduces fear concerning the usage of this technology. They recommended that banks should allow potential IB customers to try the service and provide step-by-step training and learning sessions on how to use IB.

From managerial standpoint, bankers may need to provide opportunity for their customers to "test-drive" the technology by providing the possibility for potential customers to use IB services without any prior obligation. Potential users should first learn about IB and try it out before they decide whether to adopt it. Therefore, well-designed learning programs should be provided for customers in large branches in order to familiarise themselves with the necessary knowledge about how to use the systems as well as the trial opportunities to build a better understanding in the operational aspects. This could be in a form of a separate section in branches where a number of PCs are available for potential users to setup their IB accounts with the support of bank staff.

4. Accessibility (ACC) - Factor four

The average mean score for the four observable items used to measure the ACC factor was 4.01 (greater than the scale midpoint of 3), reflecting high agreement among respondents on this factor's items. This result confirms respondents' confidence in their ability to access IB through their possession of the required resources (Internet connection and computers).

The four measurement items used were revealed by the EFA to load exclusively on factor four and to be highly correlated with each other. It was also found that factor four explains 6.64% of the total variance in the empirical data. Additionally, the CFA

results for ACC showed a high composite reliability and a high level of construct validity.

ACC was hypothesised to positively influence customer intentions to adopt IB (hypothesis H 8a), the SEM results provided no support for this hypothesis, and it was rejected. This finding suggests that ACC is not an important variable directly influencing customer intentions to use the service in Jordan. Hypothesis H 8a was originally based on the findings of previous research work by Poon (2008) in Malaysia, Padachi et al. (2008) in Mauritius, Al-Somali et al. (2009) in Saudi Arabia, Nor et al. (2011) in Romania, and Maditinos et al. (2013) in Greece. All these studies reported a significant impact of ACC on customers' intentions to adopt IB, but the current study does not bear this out. The most likely explanation for this inconsistency is the fact that Jordan has high Internet and IT readiness (MOICT, 2013; Al-Qeisi and Al-Abdallah, 2013; DoS, 2015; Internet World Stats, 2016), and its well-established IT infrastructure facilitates Internet applications such as IB. Hence, this level of accessibility to IB services in Jordan is not an important determinant of customers' acceptance since it does not encourage them to view these services more favourably and to use them.

The interviewees confirmed this theory, referring to the reasonable costs of installing a quality Internet connection in Jordan, and suggesting that access to these resources is not an issue and would not represent a barrier to use IB. Therefore, banks should realise that customers' accessibility to Internet banking does not contribute directly to adoption behaviour, however, banks could help customers who have Internet banking accessibility problems by providing a few number of PCs with free Internet access in their branches.

This same insignificant influence of ACC on IB adoption due to the well-established Internet Infrastructures in particular countries has been reported by Sathye (1999) studying Australian consumers. He found that despite most people having Internet access at home or work or both, Australians did not consider this an important encouragement to adopt banking. The same conclusion was also reached by Pikkarainen et al. (2004) researching with Finnish consumers.

5. Government Support (GVS) - Factor Five

GVS was found an important predictor of customer's intention to adopt IB in Jordan. The EFA results revealed that four measurement items (GVS1, GVS2, GVS3, and GVS4) measured GVS. These results were later confirmed by CFA, which also confirmed their construct validity and composite reliability.

The average mean score for these items was 3.61, suggesting that most respondents believed the Jordanian government has provided the necessary technical and legal infrastructure to ensure successful implementation of IB. The GVS4 measurement item was later dropped as suggested by the CFA first-run in order to enhance the measurement model goodness-of-fit.

In the current research model, hypothesis H_{10} assumed that GVS would positively influence behavioural intentions of bank customers towards using IB services. SEM path analysis results failed to accept the null hypothesis by revealing that GVS had significant positive influence on intention to use IB in Jordan and therefore, the alternate hypothesis was accepted (GVS positively influences IU). This result suggests that a higher level of perceived GVS would enhance customers' confidence and trust in IB, and it provides credibility to IB, which then encourages more customers to accept the idea of banking online.

The interviewees also supported this notion, as they all emphasised the government role in promoting and fostering the implementation of IB Jordan. They believed the government could provide support for IB implementation by establishing the required legal and technical infrastructures, and playing an active role in the co-ordination among the banks providing these services. According to the majority of interviewees, appropriate policies and regulations are necessary to protect customer privacy while banking online, and thus, enhance customer trust in IB services. The technical infrastructure, including Internet connection cost and quality, and the cost of computers as well as other needed equipment, represents another area for government support, as interviewees outlined that these features would improve the convenience of IB. Additionally, some interviewees raised the importance of the government in actively co-ordinating the IB service providers.

This result is consistent with previous IB studies. For example, Tan and Teo (2000) found that the greater the extent of perceived GVS for electronic commerce and its

related applications, the more likely that IB services would be adopted by Singaporean customers. They concluded that GVS enhances the credibility and the feasibility of various electronic commerce applications such as IB, thus increasing the likelihood of their adoption by customers. However, the researchers admit that the influence of GVS on IB adoption behaviour may not apply in the case of developed countries where the private sector tends to dominate the economy and the government role is limited, unlike the situation in most developing countries.

Examining the impact of national environment on customers' adoption of IB, Brown et al. (2004) highlight that government policies and plans regarding electronic commerce can promote the adoption of new technologies such as IB. The results of their study indicated that while GVS in Singapore had a significant influence on customers' intentions to adopt IB, that was not the case for South Africa where the government had weak influence on electronic commerce applications adoption. The researchers claim this was due to the lack of clear and well-established national information and communication technology polices and plans.

Chong et al. (2010) reported a significant positive influence of GVS on consumers' intentions to use IB in Vietnam. They believed GVS to be a major driving force in IB adoption, and suggested that the Vietnamese government could support such adoption by greater investment in Internet infrastructure such as fibre optic cabling and Internet bandwidth, and by developing a clear cyber law to improve user confidence in IB. Overall, the authors believe that governments can play a vital role in encouraging their citizens to conduct banking transactions online, which in turn would lead to the fruitful implementation of IB applications.

Therefore, the Jordanian government can help in enhancing the IB adoption by working with banks' management to ensure that there are clear laws and regulations on e-commerce transactions that could help to increase the customers' confidence about security and privacy of IB. The government can also help banks by providing a better infrastructure for the Internet-related applications in order to increase these banks competitiveness.

6. Information about Internet Banking (IIB) - Factor Six

EFA results revealed that three measurement items were highly loaded on the IIB factor (IIB1, IIB2, and IIB3). The average mean score for these items was 2.69,

reflecting the respondents' disagreement with this factor's statements. Hence, despite 34.6% of them being IB users, most admitted not having received enough information about the benefits of the service or how to use it. Consequently, a lack of IB awareness among bank customers in Jordan is confirmed. The CFA results for this factor indicated acceptable construct validity and a high level of internal consistency among its items.

IIB was hypothesised to have a positive influence on bank customers' behavioural intentions towards using IB services in Jordan (hypothesis H 11a), and the parameter estimate results in this connection indicated that it was indeed statistically significant; hence, the null hypothesis was not supported which infers support for the alternate hypothesis (IIB positively influences IU), therefore, the null hypothesis was rejected and the alternate hypothesis was accepted. This finding suggests that customers who have enough information about using IB and its related benefits are likely to have more positive intentions towards its acceptance and use. Sufficient information about the service and its benefits would, therefore, increase customer awareness about IB, and positively influence adoption.

Interviewees also confirmed this outcome, as most believed the low awareness about IB to be an important reason for its low adoption in Jordan. They too mentioned not receiving enough information about IB and its benefits from their banks. Indeed, some were completely unaware of how they might begin to use the service. Consequently, they all highlighted the need for enough information about IB to be able to appreciate its related advantages and benefits as well as to enhance their trust in both the bank and the service itself. Such information would reduce their privacy and safety concerns. Hence, they recommended that banks should offer introductory training to encourage customers to consider IB.

An implication of these results could be that commercial banks in Jordan need to provoke customers to start using IB services through various advertising tools (e.g. brochures, web pages, television, radio, personal contact at the bank, telephone calls, SMS messages, and e-mail). This will help the bank to create a better awareness among customers given the fact that most participants in both data collection phases in the current research blamed their banks for the low awareness of IB services.

Therefore, banks in Jordan could offer IB training programs for their employees in order to be more effective in dealing with customers' queries as well as promoting the service through personal contact or other advertising tools. Banks could also support their online customers through a call centre working around the clock to provide customers with instant information while they are banking online. Moreover, banks in Jordan could offer a secure e-mail service for their online customers through which the bank can securely provide answers for any inquiries regarding problems encountered by IB users.

Decision makers could also provide their customers with necessary usage information through offering a demonstration material on their website. In demonstration, customers are guided in step-by-step explanation to know how to use the system effectively. Despite the fact that some banks are already offering this on their websites, interviewees mentioned that most of these demos offer information in form of narratives rather than interactive and visual materials. Therefore, it is recommended that banks should develop more interactive demonstrations on their websites where potential IB users can be easily involved in the learning process.

These results concur with those from earlier studies that found IIB to be an important influence upon consumers' adoption of IB. Sathye (1999), for example, found the lack of information about IB to be a major obstacle to adoption in Australia. His study revealed that 74% of respondents were unaware of the availability of IB. Furthermore, despite their banks providing the service, 81% of respondents were not using it because they had insufficient information about its benefits. Hence, Sathye (1999) recommended that banks should promote their IB services, highlight the benefits, and provide assurances regarding personal security, through more appropriate marketing campaigns.

Jayawardhena and Foley (2000) also concluded that the lack of customer awareness was among other reasons of the low adoption rate of Internet banking services in the UK. They found that banks were reluctant to promote their Internet-based services because they were uncertain about their capability to provide trustworthy services due to various technology concerns. However, the scholars presumed that when banks become confident of the services they offered in the future, they would be ready to advertise them in more active manner.

Pikkarainen et al. (2004) indicated that the amount of information consumers possess about IB has a positive effect on consumer acceptance of it in Finland, and thus recommended that banks should concentrate their advertising of IB on advantages and benefits rather than less informative advertisements. Likewise, Riffai et al. (2012) researching in Oman, reported increased awareness of IB services to be positively correlated with increased intention to use. They concluded that bank customers with sufficient information about IB, especially about its benefits, are predisposed to greater adoption. Moreover, similar outcomes were recorded by Fonchamnyo (2013), who suggested that information about IB is a useful predictor of customer attitudes towards its adoption in Cameroon. Consequently, Fonchamnyo (2013) suggested that banks should offer training and education to their customers underscoring the relative advantages of IB, and the safety associated with it in order to enhance customer confidence.

7. Perceived Financial Cost (PFC) - Factor Seven

PFC was identified by EFA results as the seventh factor among those influencing IB adoption in Jordan. Costs included the expense of acquiring personal computers or tablets, and securing an online link. PFC1, PFC2, and PFC3 were used to measure this construct, the average mean score for these three items being 3.833, thus revealing that respondents considered the financial costs of using IB in Jordan to be within acceptable levels. Indeed, they believed that using these services would save them additional costs associated with other traditional ways of banking. CFA confirmed these results and provided statistical evidence of internal consistency and construct validity of the PFC construct.

The influence of PFC on intention was tested through hypothesis H_{9a}, PFC being proposed to impact positively upon IU as reported in several technology acceptance studies (Sathye, 1999; Sohail and Shanmugham, 2003; Wu and Wang, 2005; Tung et al., 2008; Tan et al., 2010; Mangin et al., 2011; Nor et al., 2011; Fonchamnyo, 2013). The hypothesis testing results revealed that the null hypothesis should be accepted and the alternate hypothesis H_{9a} should be rejected ($p = 0.132 > 0.05$), hence, PFC was not found to be a significant predictor of behavioural intention towards IB adoption in Jordan. The most likely justification for this contradiction with previous studies is the precise Jordanian context. For example, government IT policies for IT in Jordan have operated to keep essential Internet costs to a

minimum, by excluding IT items and related equipment from custom tariffs and duties in order to promote Internet and related IT applications in the country (MOICT, 2013). Thus, Internet costs for household use in Jordan are low in comparison with other countries in the region (Al-Qeisi and Al-Abdallah, 2013). Also, since IB providers in Jordan do not charge additional fees for using the service, there are no hidden extras and IB transactions are affordable, thus making decisions about affordability is redundant.

Secondly, the most recent report by Internet World Stats reveals that 86.1% of the Jordanian population were using the Internet in 2015 (Internet World Stats, 2016). Moreover, according to DoS (2015), 57.4% of Jordanian households had personal computers or/and laptops by the end of 2014. Additionally, that report revealed that 73% of public sector organisations and 74% of private sector firms had personal computers with Internet access.

Apart from using the Internet for IB, the aforementioned facts show that the Internet and its related applications are well established in Jordan and widely popular among Jordanians. Therefore, the research sample did not perceive costs associated with IB to affect their intentions; rather they were considered insignificant.

The interviewees provided further support for this position. Indeed, most participants referred to the low cost of acquiring a personal computers and an Internet connection in Jordan as the reason for this insignificant influence.

Interestingly, investigating the adoption of IB in Malaysia, Tan et al. (2010) also found that PFC had an insignificant effect on customers' intentions to adopt IB services, an outcome they explained by reference to the youthfulness of their sample (21-30 years old). This age group is believed to be more concerned with social image than cost. Simultaneously, however, the cost of IB in Malaysia is low as fees and set-up costs have reduced over the years to reach an acceptable level. Overall, it could be concluded that PFC does not contribute directly to the adoption behaviour of IB in Jordan.

8. Compatibility (COMP) - Factor Eight

In the current study, COMP was found to be an important predictor of customer intentions to adopt IB in Jordan. The EFA results revealed that three measurement

items (COMP1, COMP2, and COMP3) measured COMP. These results, construct validity and composite reliability, were all subsequently confirmed by CFA. The mean scores for these items were 3.59, 3.48, and 3.52 respectively, indicating that most respondents perceived IB to be compatible with their lifestyle and work patterns. These results suggest that IB is consistent with customers' beliefs, past experiences, and their current ways of working and managing finances. Moreover, they provide empirical support for Rogers (1995) conception of COMP as a phenomenon concerned with values, culture, experiences and needs. He argues that when an individual finds an innovation compatible with these aspects of his/her life, s/he is likely to adopt.

The SEM results did not support the null hypothesis and therefore the alternate hypothesis was accepted, since COMP was shown to significantly influence behavioural intention toward using IB ($p < 0.001$). Hence, people's beliefs in the compatibility between their lifestyles and IB predispose adoption, as they are more comfortable with using a service that requires little behavioural change and fits well into their routines. Clearly, COMP is another important factor in predicting intention to adopt IB in Jordan.

Interviewees explained the conditions when IB is/is not compatible with their lives, saying it was more so when flexibility and a speedy service available anytime from anywhere was required. Moreover, IB services seem to fit well with customers who have many banking transactions, seek accuracy, are proficient with computers and the Internet, and do not require personal contact with bank personnel.

Therefore, IB service providers in Jordan should take into consideration their customers' preferred banking styles, past experiences, lifestyles, and beliefs in order to enhance their feeling of IB compatibility. Banks should promote IB services as a new banking channel that is in line with customers' current and preferred work and life practices and emphasise at the same time how this new channel is consistent with their values.

These findings concur with previous results of new technology adoption studies in different contexts. For example, Agarwal and Karahanna (1998) found that COMP in general and COMP with values were important factors in the minds of potential Internet adopters among students of a large state university in the US. Likewise, Chen et al. (2002) concluded that American consumers' attitudes toward using a

Virtual Store were positively influenced by COMP with their beliefs, values, and needs. Specifically, in the IB context, Tan and Teo (2000) showed that perceived COMP had a positive influence on adoption by Singaporeans. They highlighted that Internet users who perceive IB as compatible with their life and work values are more motivated to adopt such services, and that those with many bank accounts and who subscribe to many banking services appreciate the advantages of IB such as convenience, flexibility, and easy service access.

Moreover, Ndubisi and Sinti (2006) indicated that COMP was among other strongly influential factors on customers' adoption of IB in Malaysia. They argue that since bank customers have already established their own personal banking norms, lifestyle, and financial management systems, their acceptance or rejection of IB will depend on the extent to which this new banking channel dovetails into their existing lifestyles. Furthermore, Muhammad and Rana (2012) reported similar outcomes, that COMP was likely to influence customers to adopt IB in Saudi Arabia.

9. Observability-Result Demonstrability (OBSR) - Factor Nine

Observability (OBS) was originally represented by two separated factors as discussed in Chapter 2 (OBSV and OBSR). While OBSV was dropped due to some statistical concerns in an early stage of the EFA and prior to SEM analysis, OBSR remained for further analysis as a potential determinant of IB adoption in Jordan. Three measurement items were identified by EFA to measure the OBSR construct, which was labelled as the ninth factor in the EFA pattern matrix shown in Appendix 5B on page 342. The CFA results confirmed the EFA results and revealed that the OBSR measurement items showed both high composite reliability and high construct validity. The average mean score of participants' responses on these items was 3.36 (above the scale midpoint of 3), indicating a level of respondents' agreement about these items.

As expected, the testing of hypothesis H_{6a} revealed that OBSR significantly influenced customers' behavioural intentions to adopt IB ($p < 0.001$) suggesting support for the alternate hypothesis (OBSR positively influences IU). The null hypothesis failed to be accepted and the alternate hypothesis was accepted. This result suggests that the ability of bank customers to show IB results to others in their social context does influence their intentions toward using these services. It is thus

concluded that the extent to which IB services are communicable in a social system seems to be a determinant of customers' adoption behaviour in Jordan.

Moreover, the interviewees also supported this conclusion, providing further explanations about the role of IB OBSR in its adoption. Seemingly, customers believe that their ability to communicate IB results to others in their social system provides social, learning, and physiological values to their usage of the service. Interviewees believe that using IB brings added social advantage for individuals since the general perception is that well educated and more civilised people, who are typically from society's upper classes, use this type of modern technology. Interviewees also admitted that demonstrability of their IB experience would benefit them by exchanging knowledge with others, as they could learn better ways to use their online service and/or teach others how to conduct IB transactions efficiently. Additionally, some interviewees claimed that sharing their IB experiences with others might help to reduce any remaining cognitive dissonance after their adoption decision.

These findings have some managerial implications; decision makers could the communicability of IB results through designing easy-to-use and easy-to-understand services. Thus, IB users would find no difficulty in discussing his/her experience with others which in turn leads to better acceptance and at the same time will result in a widespread promotion of the service to a wider audience though positive word-of-mouth.

These results are consistent with previous research findings confirming the significant impact of OBSR on behavioural intention to adopt new technologies in general and IB in particular. For example, Rogers (1983) argues that since potential adopters of new technologies are concerned with rationalising their adoption decisions both to themselves and to others in order to avoid any resultant cognitive dissonance, they find it helpful to communicate their experience of using the new technology to others in their social milieu.

Likewise, Agarwal and Prasad (1997) found that OBSR was a significant predictor of user acceptance of the WWW in their research in the USA. They justified the influence of OBSR on the intentions to use the technology by its ability to act as a rationalisation for the user's acceptance behaviour. Therefore, they postulate that the recognition of the new technology experiences in a given social context is an

important factor to reduce any dissonance resulting after early adoption involvements.

Chan and Lu (2004) found that the degree to which the results of using IB are observable and communicable to others had a significant influence on users' intentions to adopt IB services in Hong Kong; and Hernandez and Mazzon (2007) acknowledge OBSR as a significant factor in influencing intention to use and continue use of IB in Brazil. Gounaris and Koritos (2008) also concluded that OBSR, among other social and psychological innovation attributes, had a significant contribution in the prediction of IB adoption in Greece.

10. Innovativeness (INV) - Factor Eleven

Three items (INV1, INV2, and INV3) were identified by the EFA as INV measurement items, the average mean score for these being 3.28, thus indicating respondents' agreement on the scale measures. Specifically, this result means that the majority of respondents identified themselves as innovative people, willing to experience new technologies. CFA subsequently confirmed the EFA results, and revealed high composite reliability and an acceptable construct validity for this factor.

Moreover, hypothesis testing revealed that customers' INV had a significant positive impact on IU. The parameter estimate results for hypothesis H 7a were positive and statistically significant; therefore, this hypothesis was supported and accepted (INV positively influences IU). This finding suggests that the more innovative bank customers are, the more they will be active in seeking information about IB and have the ability to cope with higher levels of uncertainty, which eventually results in developing more positive intentions toward the new technology adoption.

Interviewees also agreed that INV is an important determinant of IB adoption in Jordan, the majority mentioning that innovative people are likely to use new technologies such as IB more than others. They also assumed that younger and well-educated individuals are more innovative than others, since they are usually more familiar with technologies through being required to use them in their jobs, and are more open to try new banking applications. Moreover, since this age group is more open to accepting uncertainty, as keener to find more convenient and efficient

services, they are usually more excited about new ideas and products and are able to identify the relative advantages of them earlier than others.

Therefore, the findings of this study imply that this type of customers should be identified and targeted by marketing campaigns since they are usually optimistic about new technology and so most likely to be early adopters who require less marketing effort than others.

These results concur with those from previous studies on IB adoption where it was concluded that customer INV is positively associated with intention to adopt IB in various contexts. For example, Gerrard and Cunningham (2003) found that IB adopters in Singapore were more financially innovative than non-adopters. Based on the results of their study, the researchers suggested that banks should develop and maintain records of innovative customers and then target them in order to promote their IB services successfully. Gounaris and Koritos (2008) also found that personal INV was an important predictor of customer adoption of IB in Greece. Since they concluded that more innovative customers were among early adopters of IB services, they recommended that marketing campaigns should be designed to attract such customers in order to develop the demand for IB.

7.2.2 Research Question 2

The attention of research question 2 was directed to the identification of the influence of the ten independent variables in the original research model (PU, PEOU, TRB, COMP, OBSR, INV, GVS, PFC, ACC, and IIB) on each other. As mentioned earlier, eleven hypotheses were proposed to answer this research question (H_{2b}, H_{3b}, H_{4b}, H_{4c}, H_{6b}, H_{7b}, H_{7c}, H_{8b}, H_{9b}, H_{11b}, and H_{11c}). The following paragraphs provide answers for research question 2 by discussing in detail, the results of testing these hypotheses.

1) Perceived Ease of Use Influence on Perceived Usefulness

The influence of PEOU on PU was originated by Davis (1989) who suggests that an individual's perception of ease of use of a new technology would enhance his/her perception about the usefulness of that technology. The parameter estimate results for hypothesis H_{2b} were positive and statistically significant (Table 5-14 on page 176); hence, the null hypothesis was failed to be accepted, and therefore the

alternate hypothesis was accepted (PEOU positively influences PU). Hence, it can be assumed that IB is more likely to be perceived useful by customers if it is believed to be easier to use than other banking methods.

Interviewees also supported this notion, expressing the view that the ease of IB services would help them to perceive such services as more useful since their benefits when compared with other less friendly or more complicated technologies, could be seen more easily.

These overall findings confirm the results of other studies in IB which empirically found that PEOU has a significant positive effect on PU (Suh and Han, 2002; Chan and Lu, 2004; Amin, 2007; Rusu and Shen, 2012; Giovanis et al., 2012; Maditinos et al., 2013; Nasri and Zarai, 2014; Lin et al., 2015). For example, Giovanis et al. (2012) and Maditinos et al. (2013) found that PEOU showed a significant positive influence on PU of IB services in Greece, leading them to suggest that PEOU of IB increases the real value of IB services, which in turn helps bank customers to discover its benefits for them.

Therefore, practitioners should keep in mind that potential users who face difficulty in dealing with IB services might not be able to appreciate the benefits of using these services. Banks should therefore design their services to be easy and clear and that the instructions are simple in order to encourage customers to use the service and explore its related advantages.

2) Trialability Influence on Perceived Ease of Use

The TRB influence on customers' PEOU was tested in the current study through hypothesis H 3b. SEM hypothesis testing provided no support for the null hypothesis since the parameter estimates were statistically significant at $p < 0.001$, thereby the alternate hypothesis was accepted (TRB positively influences PEOU). This result indicates that TRB is a strong predictor of PEOU of IB in Jordan, implying that a high level of customer TRB would lead them to discover how friendly the technology is and provide them with a positive judgement and the necessary confidence in their capabilities to perform IB transactions. In other words, a trial use of IB would reduce the uncertainty level associated with the adoption of such services and positively influence customers' attitudes about their ease of use. Therefore, IB service providers in Jordan should develop more aggressive approaches to introduce user-

friendly services by facilitating customers' learning through encouraging them to experience the technology first, learn the system, be involved, and feel comfortable with it.

Most interview participants confirmed the positive influence of TRB on PEOU. They highlighted that their trial use of the service would certainly enable them to realise the ease of conducting conduct IB transactions, and enhance their self-confidence in performing their own banking transaction easily. Furthermore, this overall result is in agreement with the empirical findings of Lee et al. (2011) who reported that business employees in Taiwan were more likely to view e-learning systems as being easier to use when they had the chance to try them for enough time before the formal usage. Therefore, they suggest that IS developers should design these systems to be user-friendly and relevant to the users' skills in order to enhance their perception of ease of use of the system. The managers, on the other hand, should provide potential users with the proper support by trying out these systems before putting them into practice. Moreover, as indicated by Bhatiasevi and Krairit (2013), since allowing potential IS users to try the system without charge would influence their acceptance/rejection decision; systems should be designed to need little effort and be easy to use. Their study revealed that Thai users required the opportunity to use Open Source Software on a trial basis before making the acceptance/rejection decision since they believed that would enhance their ability to deal with such software and make it easy to use in the long run.

The findings suggest that IB services providers should encourage their customers to try-out the service not only to facilitate its acceptance but also to bring their attention to the ease of use of IB services by demonstrating that these services are not difficult to implement.

3) Compatibility Influence on Perceived Usefulness

As outlined earlier in Chapter 2, many researchers believe that the higher the degree of IB services COMP with customers' past experiences, current values, and habits, the greater will be the probability of customers' positive attitudes concerning the technology's usefulness (Agarwal and Karahanna, 1998; Yu and Lo, 2007; Lai et al., 2010; Giovanis et al., 2012). In this study, the influence of COMP on PU was tested through hypothesis H $_{4b}$. Hypothesis testing results indicated insignificant impact of COMP on PU (path coefficient = -0.032, p = 0.498, and critical ratio = -

0.678); thus, the null hypothesis was accepted (p> 0.05) and the alternate hypothesis H 4b was rejected.

This finding suggests that Jordanian customers who feel IB is compatible with their lifestyle will not necessarily perceive the service as more useful for them. The result is in contrast with previous findings in the IT literature (Oh et al., 2003; Yu and Lo, 2007; Tung et al., 2008; Giovanis et al., 2012) which indicate that COMP significantly affects customers' beliefs about PU. The explanation for such contradiction may lie in the level and nature of Internet usage in this research context since Internet-based applications are well established in Jordan as already highlighted, and most respondents perceived IB to be compatible with their past experiences and values and fit easily with their work practices. This inherent level of compatibility does not apparently, add any value in the context of IB adoption, since if individuals already believe IB to be relevant to their job, life, or the manner in which they manage their finances, compatibility will not make IB services more useful for them. Additional support for this explanation was provided by the interviewees, who had been using the Internet for many years and did not perceive IB as anything special.

Such an outcome is consistent with that reported by Lai et al. (2010), who found empirical evidence of an insignificant influence of COMP on customers' perception of IB usefulness, and suggest no necessary cause and effect relationship between customers' positive beliefs about the COMP of IB and perceptions of increased usefulness of the service.

4) Compatibility Influence on Perceived Ease of Use

Hypothesis H 4c theorises that customers' perception of IB COMP with their lifestyles will positively influence their PEOU of IB services. Hypothesis testing revealed a significant positive influence in this respect, the parameter estimate results for hypothesis H 4c showing such outcome (Table 5-14 on page 176). The null hypothesis was therefore, failed to be accepted and the alternate hypothesis was accepted (COMP positively influences PEOU). This result suggests that the more compatible the IB services with the customer's past experiences and current value systems, the more the customer will perceive these services as easy to use. In other words, when IB requires no new learning, customers are more comfortable and perceive the system as easier to use.

Moreover, when bank customers find IB services in line with their values and daily habits, any associated uncertainty with such new banking method evaporates and even more positive perceptions about the ease of use emerge. This result is consistent with prior studies reporting the positive influence of COMP on PEOU in IB in which researchers claim that individuals whose lifestyles are compatible with IB are better placed to try this new method of banking and simultaneously find it less difficult to use (Tung et al., 2008; Lai et al., 2010; Giovanis et al., 2012). For example, Lai et al. (2010) argue that when new systems require tasks that are compatible with the individual's past experience, less time is required in comparing them with the old ones, thus enhancing its PEOU. The minimal cognitive effort required encourages perceptions of ease of use.

The interviewees also supported this notion. Among these, those who were actual users agreed that IB was stress-free and easy to master since it is compatible with what they do in their daily lives, thus implying no requirement to learn anything new.

This result suggests that banks should emphasise the similarity of IB technology with other traditional banking services while highlighting its ease of use when they promote their service. The familiarity of customers with Internet-based application would also enhance ease of use of IB; therefore, marketing campaigns should be designed to introduce IB as a concept or a service that is compatible with the modern customer's life implying how user-friendly will be the service for customers.

5) Observability-Result Demonstrability Influence on Perceived Ease of Use

Many IT researchers have investigated the influence of social context on the individual's attitudes toward using new technologies. For example, the DIT suggests that individuals' perceptions about a particular innovation are formed as a result of gathering and combining information from their social systems (Rogers, 1983; Agarwal and Prasad, 1997). Consequently, it has been widely believed that the tangible recognition of a new technology usage experience can positively influence an individual's perception towards how easy to use this particular technology is, and what benefits accrue (Agarwal and Prasad, 1997; Liao et al., 1999; Venkatesh and Davis, 2000; Oh et al., 2003; Hernandez and Mazzon, 2007; Gounaris and Koritos, 2008).

The results of hypothesis testing revealed that the parameter estimates for hypothesis H 6b were not statistically significant, and hence, the null hypothesis was supported by the current study results, and subsequently accepted. This result suggests that the customer's ability to explain his/her experience of using IB to others does not influence the PEOU of IB. However, customers may find that when they do relay their IB experiences to others, any remaining dissonance regarding their decision to adopt is reduced (Agarwal and Prasad, 1997) and their advice might lead others to adopt IB without the effort and time needed to find out for themselves (Oh et al., 2003). Therefore, it could be concluded that OBSR may help bank customers to justify their own decisions about IB adoption and to motivate other customers to explore the benefits and features of IB, but it will not lead them to perceive it easier to perform.

This finding confirms the results of Oh et al. (2003) who found that OBSR was not among the factors that had a significant effect on ease of use of broadband Internet in Korea. They concluded that demonstrating the results of using a particular technology to others does not enhance the Individual's PEOU about it. However, this result contradicts the finding of Mun et al. (2006) who reported that the PDA (Personal Digital Assistant) OBSR positively influenced its PEOU among healthcare professionals in the US. A possible reasoning for this contradiction might be the differences between the technologies investigated in the two studies. While it is believed that the results of using a PDA could be easily shared and communicated to others with little privacy and safety concerns, this is not the case with IB where the results usually involve sensitive and private financial information that cannot be shared with others. Therefore, no in depth discussions about how to use the system would be possible between users. Hence, the current research finding infers that OBSR would not contribute much to the individual's skills in dealing with IB transactions.

Furthermore, interviewees supported these outcomes, mentioning that while OBSR of IB might enhance their social image and rationalise their early adoption decision, its influence on PEOU would be weak in the short term due to their privacy concerns.

6) Innovativeness Influence on Perceived Usefulness

Agarwal and Prasad (1998) propose that personal INV has a moderating influence on individuals' acceptance of new technologies. They argue that innovative individuals are expected to perceive new technologies as more useful than non-innovative people because they are able to identify its related value more easily.

It was hypothesised that high levels of INV would lead to high levels of PU among bank customers in Jordan (hypothesis H_{7b}). In fact, the results of hypothesis testing did not provide support for the null hypothesis since the parameter estimate results for this hypothesis showed a statistically significant causal relationship, thereby rejecting the null hypothesis and accepting the alternate hypothesis (INV positively influences PU). This result suggests that customers with high personal INV will be more active in gathering information about IB and thus develop more positive attitudes toward its relative advantages and benefits. The ability of innovative people to cope with higher levels of uncertainty makes them more proactive in searching for new ideas and products to fulfil their needs. Thus, the PU of the new technology would be their first priority. The support for the alternate hypothesis is consistent with previous research that has reported a significant positive effect of INV on PU (Lewis et al., 2003; Lu et al., 2005; Montazemi and Saremi, 2013).

Moreover, the finding was confirmed by the interviewees, with most believing that innovative individuals' ability to accept uncertainty creates more excitement among them about new ideas and products, and predisposes them to be able to identify the usefulness of new technologies earlier than others.

7) Innovativeness Influence on Perceived Ease of Use

INV in hypothesis H_{7c} was theorised to positively influence customers' attitudes of PEOU of IB. The parameter estimate results for hypothesis H_{7c} (path coefficient = 0.261, critical ratio = 5.113) failed to support the null hypothesis where statistically significant influence was revealed ($p < 0.001$); hence, the alternate hypothesis was supported and accepted (INV positively influences PEOU).

This finding is consistent with the empirical findings of previous research, for example, a study by Lewis et al. (2003) to examine factors affecting knowledge workers' beliefs about IT use in the US found that personal INV with IT had a positive

effect on individuals' beliefs about the ease of use of the target technology. Another example is the study of Lu et al. (2005) who found that personal INV had a significant causal relationship with PEOU when considering the adoption of wireless Internet services via mobile technology (WIMT) among American users. Additionally, Montazemi and Saremi (2013) examined the factors affecting initial intention to use IB in twenty-six IB empirical studies, found empirical support for the strong effect of INV on IB PEOU. Overall, consistent with the findings of previous pertinent empirical studies, a significant positive impact of personal INV on ease of use was confirmed by this study's results, thereby suggesting that among other customers who are exposed to the same banking channel, individuals with higher personal INV are expected to develop more positive beliefs about ease of use of IB services. Since IB is a new technology, most customers have limited knowledge and experience and are unable to form clear ideas about it. Therefore, curiosity, openness to new experiences, and self-confidence are characteristics that would overcome the knowledge limitation and enhance confidence in the capability to handle such new technology.

The interview results also lend support to the alternate hypothesis as interviewees believed in a positive impact of personal INV on IB ease of use. Most mentioned that the familiarity of innovative people with the Internet and IT applications make IB easy to use for them.

8) Accessibility Influence on Perceived Ease of Use

In this study, hypothesis H_{8b} tested the influence of ACC on PEOU. It assumed that customers' ACC to the required resources for IB would positively affect their attitudes about IB services ease of use. The results of testing this hypothesis revealed that the parameter estimates were statistically insignificant, and hence, the null hypothesis was supported by the study results. It was consequently, accepted leading to reject the alternate hypothesis. This finding suggests that ACC to personal computers and the Internet does not influence the customers' PEOU of IB, and it contradicts previous findings from Pikkarainen et al. (2004) and Al-Somali et al. (2009) who found a significant influence in this relationship, in Finland, and Saudi Arabia respectively. A possible explanation for this result is the high level of Internet usage in Jordan already documented, which makes ACC a redundant variable in predicting Jordanian customers' acceptance. Therefore, it can be concluded that

ACC alone does not make customers view IB services more favourably than other traditional banking methods, and hence, does not encourage them to conduct their financial transactions online.

The interviewees confirmed this outcome, clarifying the independence of the two constructs. Essentially, they saw no causal relationship between them since the decision to adopt IB was seen as resting on much more than a technical matter.

9) Perceived Financial Cost Influence on Perceived Ease of Use

The influence of PFC on customers' PEOU was tested through hypothesis H $_{9b}$, which assumed that low PFC does positively influence the customer's PEOU of IB services. Hypothesis testing results provided no support for the null hypothesis since the parameter estimates were statistically significant at $p < 0.001$. Hence, the alternate hypothesis was accepted (low PFC positively influences PEOU).

This result is in agreement with the empirical findings of previous studies (Lichtenstein and Williamson, 2006; Poon, 2008), and also indicates that PFC is a predictor of PEOU of IB in Jordan, suggesting that when the costs of purchasing a computer and accessing the Internet are low and reasonable for customers, they would be more willing to explore the new technology. The potential savings in terms of time, physical effort, and transportation, represent less cost to customers, and in this situation, their perceptions of IB may be more favourable.

The interviewees held similar beliefs, highlighting the low costs associated with IB to facilitate the use of the service. Additionally, they believed it would make the process of deciding to bank online less stressful as it would remove the need to consider complex cost issues.

10) Information about IB Influence on Perceived Usefulness

Hypothesis H $_{11b}$ was developed from the literature to evaluate the impact of available IIB on their PU of the service. The results of hypothesis testing revealed that the parameter estimates for hypothesis H $_{11b}$ (Table 5-14 on page 176) were statistically insignificant indicating support for this the null hypothesis which was subsequently accepted and the alternate hypothesis therefore was rejected.

This result suggests that PU is not influenced by customers' awareness of the service. Hence, more information about IB will not result in more positive attitudes

about its usefulness. This result contradicts the findings from previous research studies (Sathye, 1999; Sohail and Shanmugham, 2003; Pikkarainen et al., 2004) where IIB appeared to have significant influence on customers' perceptions of service usefulness and benefits. The explanation for such inconsistency may be that most participants in this study claimed to have inadequate information and knowledge about the online services provided by their banks.

Consequently, banks should provide more information in this respect in their marketing strategies to help customers in their decision-making. Whether the service is useful or otherwise, is dependent upon personal banking needs, not on what they know about the service, but without knowledge of the service it is impossible to determine whether what is offered can assist in meeting their needs. Hence, the provision of more information would help customers to decide whether to adopt IB, but it would not positively influence their attitudes about its usefulness.

Several interviewees also underscored this conclusion, saying that if more information about IB were provided, it would help them to recognise the benefits of the service but would not create the need for it.

11) Information about IB Influence on Perceived Ease of Use

The causal relationship between IIB and PEOU was examined through hypothesis H_{11c}, which was not supported by the findings as the hypothesis testing results revealed insignificant causal path between IIB and PU (path coefficient = -0.007, $p > 0.05$ ($p = 0.836$), and critical ratio = -0.207). Hence, the null hypothesis was accepted and the alternate hypothesis was rejected. This finding suggests that customers who are more aware about IB services do not necessarily perceive these services as easier to use than others. Therefore, the amount of information possessed by individuals is not a predictor of perceptions regarding ease of use. The lack of support for hypothesis H_{11c} contrasts with previous findings in the IT literature which showed that high individual awareness significantly affects customers' PEOU of IB (Jaruwachirathanakul and Fink, 2005; Prompattanapakdee, 2009; Fonchamnyo, 2013).

An explanation for such contradiction may be that most of the participants in this study had little awareness of the online services offered by their banks, and may consequently have been uncertain about what information might be provided to

them and how that information might influence their perceptions regarding ease of use of the service.

This was echoed by interviewees, many of whom claimed that bank employees told them very little about IB and were found not to know the answers to questions raised by customers when they were asked about the system. Hence, interviewees were unable to evaluate the impact of related information on Internet banking PU and PEOU.

7.3 Research Objective 2

The second objective of the study aimed to explore the differences between IB users and non-users in terms of their demographic characteristics as well as their attitudes towards the factors identified in Research Objective 1 that influenced their adoption of the service in Jordan.

In order to achieve Research Objective 2, research question 3 was formulated as follows:

- **Research Question 3:**

"Why do some Jordanian customers use IB services whilst others do not?"

The following two sections present and discuss in detail how the second research objective is achieved through answering this research question.

7.3.1 Users and Non-Users Demographic Observations on Dependences

Descriptive analysis and the Chi-square tests were used to explore the demographic dependencies for IB users and non-users, and the role of each demographic variable in the decision to adopt or reject IB services.

1. Gender Observations

The results revealed that in Jordan, males were more willing to use IB than females, since the majority of IB users were males (61.9%), and the majority of the non-users were females (52.5%). Moreover, 40.7% of the total male respondents were IB users, whereas female users were only 27.7% of the total female respondents.

Chi-square test results also confirmed the relationship between gender and IB adoption decision, males being more likely to adopt IB than females. This finding provides evidence about the significant effect of gender on the use of IB in Jordan, something possibly attributed to the differences in decision-making processes between males and females with respect to acceptance of new technologies. In this regard, several scholars have reported that males' estimates of IB benefits were significantly higher than females and their satisfaction with IB was greater, and hence they were more willing to adopt IB than females (Venkatesh and Davis, 2000; Venkatesh et al., 2003; Wan et al., 2005).

Moreover, the results regarding gender in the current study confirm the findings from previous studies, which reported a predominance of males among IB users, mainly in other developing countries. For example, Riffai et al. (2012) found a high adoption level of IB services among males (79%) compared to females (21%) in Oman. Tan et al. (2010) also found that more male IB users than female users in Malaysia, and similar reports have come from Tan and Teo (2000) in Singapore, Kesharwani and Bisht (2012) in India, and Njuguna et al. (2012) in Kenya.

2. Age Observations

In age terms, the majority (75%) of IB users were adults of working age within the 21-40 age group. This finding was expected as most respondents (64%) fell in the same group range. Moreover, it was found that the age group distribution for both users and non-users was close for young and middle age groups (21-30 and 31-40) and the gap between them was more obvious among the very young customers (15-20) and the other three mature customers' age groups (41-50, 51-60, and over 60). No customer above 60 years old was using IB. This is explained by the fact that those individuals were mainly in their retirement and hence, not involved in many banking transactions, unlike participants from other age groups. The next lowest number of non-users came from the group 15-20 years of age, a finding explained by the characteristics of these respondents, who were mainly students without full-time jobs, and again only involved in limited bank transactions such as cash withdrawals for their everyday needs.

The Chi-square results revealed a significant association between the age variable and IB usage, showing young and middle-aged customers (21-50) being more willing to use IB services compared to much younger (15-20) or much older customers (over 51 years old). Hence, it was concluded that age is an influential factor in determining the usage of IB in Jordan.

This influence of age on predisposition to use IB as revealed in the study concurs with most previous research findings, which identify IB users as generally young. For example, Akram and Asghar (2012) found that while the age of IB users in their research in Pakistan ranged from 20 to 50+ years old, most users were aged between 22 and 40 years. Moreover, a study by Tan and Teo (2000) reported that most IB users in Singapore were young adults (21- 29 years old: 64.1%) and middle-aged adults (30 to 39 years old: 20.3%). And Akinci et al. (2004) also reported that middle-aged Turkish bank customers were more likely to adopt IB services more than younger or older customers.

3. Education Observations

In terms of education level, the current study's findings revealed that participants with high education levels were more willing to use IB than less educated customers. The education level distribution between users and non-users showed that the adoption percentage mainly increased with higher levels of education. For example, while 39.9% of Bachelor degree holders were IB users, this percentage increased to 46.9% and 48.4% of customers with Master's and Doctorate degrees respectively. However, when considering other education level groups, particularly that of the diploma degree, only 8.8% were users (91.2% non-users). In general, these results suggest that IB users are typically highly educated customers.

The Chi-square results for the education level factor provide further support for the above findings, thus indicating that education level is influential in the customer's decision to adopt IB in Jordan, where more educated individuals tend to be more willing to bank online.

This outcome reinforces previous findings that education serves as a predictor of IB adoption behaviour. For example, Rogers (2003) highlights that early adopters of new technologies usually have more formal education than do late adopters. Al-Somali et al. (2009) also concluded that education level has a positive impact on

customer attitudes towards IB services in Saudi Arabia; and Venkatesh (2014) found the same situation in India. Moreover, Jaruwachirathanakul and Fink (2005) found IB users in Thailand to be highly educated individuals, a fact rationalised by the need for such people to demonstrate a certain level of computer literacy and Internet-related skill.

4. Occupation Observations

The occupation distribution of the study's respondents showed that two categories of occupation (public and private sector employees) dominated the sample for both users and non-users. This could be a result of the age distribution of the sample as the majority of respondents (64%) came from the young and middle age groups, which usually comprise those of working age. Moreover, the proportions of users and non-users within the same occupation category for the five occupation categories showed that the least proportion of users fell in the OTHER occupation category (e.g. retired people, housewives, and unemployed). Nevertheless, when considering the other occupation categories, the adoption percentages gap within each particular category was found to be slightly different, thus suggesting that the occupation differences among Jordanians have some influence upon their adoption of IB.

Indeed, the Chi-square results for the occupation factor association with usage were found to be significant. Thus, it could be concluded that the occupation of bank customers in Jordan are influential on the predisposition to adopt IB. Private sector employees seem to be most willing to bank online, then public sector employees, students, and self-employed customers.

This finding agrees with previous research outcomes that have revealed customers' occupation level as significantly associated with the adoption of IB services. For example, Wan et al. (2005) found that IB adoption among higher-level occupations was higher than among students, lower level, and high-autonomy occupations in Hong Kong. Jayawardhena and Foley (2000) argue that educated customers with full-time jobs are actively searching for new banking channels that can satisfy their complex transactional needs at the least cost. Hence, this type of customer appears to be ready for IB, as observed in their domination of IB usage in the UK.

5. Income Observations

Finally, with respect to income differences between IB users and non-users, the results revealed that participants with high-income levels were more willing to bank online than customers with lower levels of income. The income level distribution between users and non-users showed that the adoption percentages mainly increased as the individual enjoyed a higher income level. For example, while only 17% of low-income class (less than 300 JD) were IB users, this percentage increased to 30.6%, 36%, 41.7%, and 52% for customers in the other four income categories respectively. Clearly, these results suggest a positive relationship between the level of income and IB adoption in Jordan, with users coming mainly from upper-middle and high-income classes. Such findings can be explained by the fact that individuals with moderate to high-income levels are usually more involved in banking due to their various financial activities, and hence, have more banking needs than their lower income level counterparts.

The Chi-square results provided additional evidence of income level influence on individual willingness to adopt IB in Jordan, since a significant association between the two variable was found. Elsewhere, Wan et al. (2005) found the monthly household income to be significantly associated with the adoption of IB services. Researching in Hong Kong, they reported that while low-income customers inclined to rely more on physical branch banking, customers with moderate and high income levels relied more on IB when performing their banking transactions. They indicate that individuals with high income have more financial resources to manage; therefore, they are more interested than others in a flexible and convenient banking channel such as IB.

Moreover, Lassar et al. (2005) found household income to be positively and significantly related to IB adoption in the US. They argue that since income level predicts customers' predisposition to use/reject IB services, it serves as a direct and effective means by which marketers can target potential IB users.

7.3.2 Users and Non-Users Attitudinal Test for Differences

In order to shed more light on what makes some Jordanians adopt IB services and others reject them, a series of independent t-tests was undertaken.

1. Perceived Usefulness Test for Differences

With respect to PU, the t-test results revealed that the difference between users' and non-users' mean scores was significant (t (459.8) = 7.825, p < 0.05) with a medium-sized effect (r = 0.34) that explained 11.6% of the total variance in PU responses. Hence, participants who were using IB considered it more productive, quick, beneficial, and effective than did non-users. Such difference might be accounted for users' active involvement in IB since their existing experience of it, of learning how it works, and their comfort with the system, fosters a perception that it is useful for them.

These findings are in line with the previous studies concerning IB adoption (Gerrard et al., 2006; Cai et al., 2008; Muhammad and Rana, 2012; Njuguna et al., 2012). For example, Cai et al. (2008) reported that US IB users emphasise the perceived advantages of the service more than non-users. They found that if bank customers can identify the relative advantages of IB compared to traditional banking, they are more likely to adopt the service. Additionally, they argue that once customers have used IB services, the relative advantages become clearer, in turn fostering greater PU of them. Muhammad and Rana (2012) also revealed a significant difference between the scores of IB users and non-users in terms of PU of the service. They claim that IB users in Saudi Arabia perceive it to be more useful in terms of time and effort savings, and convenience, than non-users.

2. Perceived Ease of Use Test for Differences

The t-test results also revealed that attitudes of IB non-users were lower than users in terms of PEOU (t (459.7) = 10.393, p < 0.05). Users perceived the service as easy to learn, easy to understand, and flexible, whereas non-users did not. This finding could be explained by the demographic differences between the two groups since users were younger and more educated than non-users, and hence more familiar with Internet and more computer-literate. According to Polatoglu and Ekin

(2001), the more customers are knowledgeable and skilful in using computers and the Internet, the easier it is for them to engage in IB.

This result supports those from earlier studies that find IB users to hold more positive beliefs about the ease of use of the service than non-users. For example, Lichtenstein and Williamson (2006) reveal that many Australian non-IB users perceived IB services as too complicated and requiring much Internet and computer knowledge to perform. Likewise, Karjaluoto et al. (2002b) found many Finnish non-users of IB to believe the Internet and computers as difficult to use, thereby presenting an obstacle to adoption; and comparable outcomes were also revealed by Muhammad and Rana (2012) in Saudi Arabia, and Rotchanakitumnuai and Speece (2004) in Thailand.

3. Trialability Test for Differences

In terms of TRB, the t-test statistics ($t(420.96) = 5.708$, $p < 0.05$) revealed that Jordanian IB users placed a higher level of importance on the need to test-drive the service before actually using it than did their non-user counterparts. This result might be explained by the users' active involvement in IB applications, since their familiarity with such service increased their awareness of the importance of testing the new technology. This was clearly stated by one interviewee (**V1**), who pointed out that he had his first experience with IB without any introductory test. He claimed that had he been given the opportunity to test the service before his first real use, he would have been more satisfied.

These results support those from earlier studies, as for example, Mattila et al. (2003) who identified that the lack of training had led to confusion when using IB for the first-time, and that this was a substantial barrier to IB adoption in Finland. Gerrard and Cunningham (2003), likewise, stressed the need for TRB of IB as this provides customers with the necessary confidence in using the service. They pointed out that Singaporean customers' previous bad experience with banking technology, such as ATMs, prevented them from banking online, and thus suggest the opportunity to trial the service as a means of reducing the associated risk for customers by increasing their confidence. Similarly, Cai et al. (2008) emphasise the importance of TRB, pointing to US customers' greater recognition of the benefits of IB when they had the chance to experiment with the service since this created a greater sense of

knowledge about it and comfort in using it. In general, the users in their study had more positive feelings toward IB through TRB than did non-users.

4. Compatibility Test for Differences

Regarding COMP**,** the t-test results ($t(456.4) = 11.139$, $p < 0.05$) suggest that IB users perceived IB to fit well with their daily routines and work habits more than did non-users. This finding is also potentially due to the demographic differences between the two groups. According to Tan and Teo (2000) and Karjaluoto et al. (2002b), customers who have some Internet experience and reasonably high computer literacy are more likely to perceive IB as compatible with their existing lifestyles.

Since IB users in this study were young, well educated, and enjoyed moderate to high income levels, they are assumed to be more computer and Internet literate, and hence more inclined to perceive IB as compatible with their past experiences, day-to-day habits, and work practices than non-users.

These results support the findings of previous studies, for example, that of Gerrard et al. (2006) found that non-users of IB in Singapore did not use the service because it was incompatible with their existing values. Their preference was for a personal service delivered at the branches. Likewise, Karjaluoto et al. (2002a) found that a large number of non-users of IB in Finland felt exactly the same way. Indeed, Mattila et al. (2003), also reporting in Finland, found the lack of human touch, and satisfaction with existing banking modes, to be barriers to IB.

In Saudi Arabia, Muhammad and Rana (2012) also revealed a significant difference between the scores of IB users and non-users regarding COMP of IB with bank customer's lifestyle. They claimed that IB users reported higher satisfaction levels with the service than non-users, as they perceived electronic operations to be more consistent with their existing values, past experiences, and banking needs. And Gerrard and Cunningham (2003) found that Singaporean customers tended to reject IB because it was incompatible with their banking needs. Their study revealed that customers were comfortable with using ATMs, and afraid of using new technologies, concluding that low IB adoption was due to the service's incompatibility with customers' existing values and banking preferences.

5. Perceived Financial Cost Test for Differences

Regardless of PFC not being found to be a significant direct predictor of behavioural intention towards IB adoption in Jordan, the t-test results ($t(452.7) = 7.383$, $p < 0.05$) did reveal that users' and non-users' attitudes towards it were statistically significant. In general, Jordanian IB users perceived the financial cost involved in conducting banking transactions online to be more reasonable than did non-users. Lack of adequate information about such costs and the income level of non-users might be reasons for this outcome. The positive relationship between income level and IB adoption in Jordan is justified by the fact that most non-users were low-income customers. High-income customers find IB more affordable, whereas those with less purchasing power are deterred from adopting the service because of the required outlay on the technology.

However, the results showed that PFC had a positive influence on the PEOU of IB, which might account for the difference between user and non-user groups since once customers perceive IB to be an economical option; they are encouraged to explore the service and determine how easy it is to use. Conversely, customers who believe that IB is costly would not consider it easy to use because the financial barrier prevents them from such exploration.

These findings are in line with those from earlier studies of IB. For example, Lichtenstein and Williamson (2006) reported that customers mentioned various types of cost that had inhibited their use of IB. They indicated that financial costs (computer, Internet access, and additional charges by the bank) were cited by many non-users as major hurdles to adoption in Australia; and Mattila et al. (2003) observe that mature customers in Finland offer the high start-up cost of IB as a main reason discouraging them from using the service.

6. Observability Test for Differences

With respect to IB OBS, the t-test results showed a significant statistical difference between users and non-users in their attitudes towards both dimensions of this factor, OBSV ($t(304.8) = 8.152$, $p < .05$) and OBSR ($t(417.4) = 9.638$, $p < 0.05$). This means that since IB services in Jordan were observable and noticeable more by users than non-users, users were facing less difficulty than non-users in explaining why using these services were beneficial to them. Again, respondents' demographic

characteristics might be the reason behind these differences, since young, well educated, and wealthier IB users are more aware of marketing efforts concerning IB, and more willing to communicate their own experiences with the system to others due to their active involvement and positive attitudes towards IB usefulness (Venkatesh and Davis, 2000; Hernandez and Mazzon, 2007; Gounaris and Koritos, 2008).

These results support the outcomes of previous studies in the IB context. For example, Njuguna et al. (2012) indicated that users' attitudes of OBSR of IB in Kenya were more positive than non-users' attitudes; and Gounaris and Koritos (2008) also found that OBSR, which represents the social aspect of IB, had an important contribution in the prediction of IB usage/non-usage in Greece. Varaprasad et al. (2013) argue that IB adoption among Indian customers, who believed this service to be highly visible in the media, was higher than among other customers. They claim that this type of customer could gain knowledge about the services and its benefits and then share such information with friends and colleagues, which in turn makes the service more visible and increases the chance of greater adoption.

7. Innovativeness Test for Differences

The t-test results ($t(353.8) = 10.483$, $p < 0.05$) also showed a statistically significant difference between average mean scores for both users and non-users in terms of INV. Hence, Jordanian IB users were more open to new experiences and trying new technologies than non-users, again a possible reflection of the well-educated, affluent, and young sample, since such individuals are presumed to be innovative and receptive to new technological developments. Technology acceptance scholars claim that customers with high personal INV are characterised by both social flexibility and active involvement, and usually display positive attitudes toward risk-taking. Therefore, innovative customers are most likely to be among the early adopters of new technologies such as IB (Rogers, 1995; Lassar et al., 2005; Gerrard et al., 2006).

These results confirm those of previous studies showing personal INV to be significantly related to IB adoption. For example, Montazemi and Saremi (2013) claim in their meta-analysis, that innovative customers are more likely to adopt IB than non-innovative customers because the former are generally more active in

searching for information about new innovations and have more favourable attitudes towards uncertainty and risk. The researchers also found that innovative customers tend to develop positive attitudes regarding the ease of use and the usefulness of IB services more than do less innovative individuals. Moreover, Muhammad and Rana (2012) reported a significant difference between the scores of IB users and non-users in Saudi Arabia with regard to personal INV. They concluded that individuals with more innovative behaviour were more willing to adopt the newly introduced services than less innovative ones.

8. Government Support Test for Differences

With respect to GVS, the independent t-test results ($t(363.1) = 2.825$, $p < 0.05$) showed a significant difference between the average mean scores of both groups. However, the effect size results showed that this difference was too small ($r = 0.15$) to provide good explanations for the variations in the total scale scores. Hence, both users and non-users of IB in Jordan perceived the government role in supporting IB application to be important. This result could be explained by the importance of GVS for new technologies in developing countries in lending credibility and feasibility to these technologies, and in enhancing consumer trust in them (Tan and Teo, 2000; Chong et al., 2010; Susanto et al., 2013). Therefore, it seems that all customers consider GVS as an important factor for IB adoption, regardless of their usage status.

This belief is consistent with that expressed by previous researchers exploring GVS for new electronic commerce applications and particularly IB. For example, Tan and Teo (2000) found that GVS was an important factor encouraging Singaporean customers to adopt IB services, since the increased trustworthiness added to the technology, enhanced consumer confidence in it, and persuaded them to try it. More recently, Susanto et al. (2013) found exactly the same outcome in Indonesia. And in their research in Vietnam, Chong et al. (2010) reported the same finding, suggesting that GVS as a significant determinant to predict intention to use IB was particularly important in developing economies.

9. Information about IB Test for Differences

Concerning IIB, the t-test results ($t(329.2) = 6.664$, $p<0.05$) revealed that the difference between user and non-user groups in their average mean scores was

statistically significant. IB users possessed more information about the service and gained confidence as they continued to use it, thereby gaining even more information/expertise. In general, users reported having been provided with the information necessary to enable them to operate the service, and with details of how this would be beneficial to them, whereas non-users claimed that their banks had not provided them with sufficient information in this respect. Indeed, some had never heard about the service, as revealed by certain interviewees. Moreover, it was noticeable during the process of quantitative data collection that many non-users were completely ignorant of the existence of IB services and had never seen these advertised in Jordan. The specific characteristics of users might explain this result, since as already mentioned, well-educated, young, and well-paid customers who rate themselves as innovators and as being open to new experiences, would generally be looking for new IT applications, and more confident in experimenting with them.

This result supports previous research outcomes concerning IB adoption. For example, Akinci et al. (2004) concluded that non-user respondents (unlike users) were unware of most benefits of IB, and unsure about how to use the service due to lack of information and technical support from their banks. Also, Lichtenstein and Williamson (2006) found in their Australian study that lack of information about IB and its benefits were key reasons for non-use. Likewise, Laforet and Li (2005) studying consumers' attitudes towards Internet and mobile banking in China revealed a significant difference between users' and non-users' in terms of their level of awareness of these services. Their results showed that most non-users were completely unaware of the service.

Finally, according to Gerrard et al. (2006), lack of knowledge about IB was the most reported reason by their study respondents for not using IB in Singapore. The researchers indicated that respondents were unaware of the service availability, what procedures should be followed to become an IB user, and the level of computer skills needed to use the service.

10. Accessibility Test for Differences

In terms of IB Accessibility (ACC), the t-test results ($t(446.5) = 6.929$, $p<0.05$) revealed a significant difference between users and non-users, indicating that users were more able to access IB than non-users. The reasons as reported by

interviewees were simply the lack of ownership of a personal computer, not having an Internet subscription, or existing computers, which were not compatible with IB technical requirements.

Hence, it can be concluded that IB users in Jordan (unlike users) do not experience problems with the required technical resources for IB; again, this is unsurprising given the demographics of the sample - well-paid, young, and well-educated customers who are assumed to be intensively using IT, and capable of adjusting to IB much easier and more quickly than current non-users.

This result concurs with the literature, which emphasises the crucial nature of ACC to personal computers and a decent Internet connection for IB adoption. It is commonly agreed that the absence of Internet ACC will prevent the engagement with IB services even for those who appreciate the benefits (Gerrard and Cunningham, 2003; Jaruwachirathanakul and Fink, 2005). In addition, Karjaluoto et al. (2002a) reported that the Internet was considered hard to use and access in Finland, thereby having a significant negative impact on the adoption of IB. They also found that most non-users of IB did not have access to the Internet.

Gerrard and Cunningham (2003) argue that as customers gain more ACC to the Internet, they will become more inclined to use the services it can provide, such as IB.

On this issue of Internet ACC, Jaruwachirathanakul and Fink (2005) reporting from Thailand, identified the poor Internet infrastructure and facilities as a significant discouragement to customers to adopt IB services; and Lichtenstein and Williamson (2006) reported the same conditions in Australia. Conversely, they found that IB users enjoyed a high level of Internet ACC both at home and at work, where computers were Internet-linked permanently, and hence, readily available for banking online. Durkin (2007) also indicated that customers who were in a better position to access computers and Internet at both home and work were more likely to use e-banking services in the UK.

11. Intention to Use Test for Differences

Finally, in terms of the dependent variable in this study, IU IB services, the t-test ($t(460.98) = 14.183$, $p<0.05$) revealed a significant difference in average mean scores between users and non-users. Although all respondents (users and non-users) were

agreed on their intentions to use IB in near future, non-users were more sceptical than users.

This concluding result reflects the previous differences between the two groups on all other independent variables, which were identified as influencing customers' intentions to adopt IB services in Jordan. Hence, it can be understood that these variables play an important role in explaining the behaviour of non-users.

7.4 Research Objective 3

The third objective in the current research was to confirm the empirical validity of the research model, which was developed based on TAM and DIT with the additional external factors intending to provide a deeper understanding of customer behaviour related to IB adoption specifically in Jordan. In order to achieve research objective 3, research question 4 was formulated as follows:

- **Research Question 4:**

  "How effective is the use of the proposed model in attempting to explain and predict customers' adoption behaviour in respect of IB services in Jordan?"

The following section discusses how the study's findings have answered this question.

7.4.1 Research Question 4

The results of the study provide support for the final research model presented in Figure 5-8 on page 182 and for the causal relationships among the model variables. As is clear from the SEM fit statistics in Table 5-15 on page 181, the final model yielded a set of acceptable fit indices indicating that the model was a confirmed fit with the empirical data. According to the final research model, the intention to adopt IB is determined by nine factors, PU, PEOU, TRB, COMP, PFC, OBSR, INV, GVS, and IIB.

The explanatory power of the established models in traditional TAM and DIT studies that focus on predicting users' intentions towards the adoption of information technologies, are around 40-60% (Venkatesh and Davis, 2000; Venkatesh et al., 2003; Pikkarainen et al., 2004; Tsai et al., 2014). In their study, Pikkarainen et al. (2004) using an extended TAM model, with PU and information on the website as

main determinants of intention in their proposed model, developed a model that explained only 12.4% of intention to use IB in Finland. However, Yu and Lo (2007) were more successful by combining TAM and DIT in order to explore factors influencing individual beliefs to adopt IB in Taiwan; they reported that a proposed model of PU, PEOU, perceived trust, and perceived convenience explained 47.8% of the variance in customers' intention to adopt IB. Likewise, Giovanis et al. (2012) found that their integrated TAM/DIT model explained 59.5% of intention to adopt IB based on four main antecedents, namely, COMP, PU, PEOU, and perceived security and privacy risk. Al-Ajam and Nor (2013b) who used RADV, PEOU, and trust, to study individuals' behavioural intentions to adopt IB in Yemen, found their model to explain approximately 56.7 % of the variance in behavioural intention. Similarly, Maditinos et al. (2013) reported that their extended TAM model explained 52% of intention to adopt IB in Greece. The model developed by Susanto et al. (2013) found that their model explained about 49.5% of the variance in IB usage intention, and Hosein (2010) extended TAM model explained 43.5% of the total variance in customers' willingness to adopt IB.

However, the explanatory power of the proposed model in this study (in respect of IB) is shown as 61.7%. Furthermore, 33.2% of the observed variance in PU appeared to be explained jointly by PEOU and INV, whereas 43.2 % of the variance in PEOU is accounted for COMP, INV, TRB, and PFC.

Therefore, compared with other IB studies, this one produces results that confirm the model as developed, to have better explanatory power, and to be robust in predicting customers' intentions to adopt IB in Jordan. Overall, it could be concluded from the foregoing discussion that the model proposed in the current study provides a good understanding of factors that influence customers' intention to adopt IB in Jordan. Moreover, this result also suggests that the model could serve as an adequate conceptualisation of technology acceptance in general and IB in particular.

7.5 Summary

This chapter has presented a discussion of the combined results gathered via the questionnaire and interviews. It has considered the key findings related to each

research question in the light of the literature, in an attempt to show how the research objectives have been met.

Overall, eight of the ten variables tested in the preliminary research model were found to have significant and direct influence on the Intention to Use IB services. Therefore, these variables - PU, PEOU, INV, COMP, OBSR, TRB, GVS, and IIB - have been incorporated in the final model.

ACC had no significant influence on IU and has thus been excluded. Moreover, PFC was found to influence IU only indirectly through PEOU.

Moreover, the results of comparisons between IB users and non-users revealed these groups significantly different from each other in terms of their demographic characteristics and their attitudes towards all variables investigated in the present study.

The final IB adoption model proposed in the study was validated, confirmed, and proved to be effective in explaining customers' intentions to adopt IB services.

In the following chapter, the thesis is drawn to a final conclusion, the contributions made by the study are highlighted, recommendations based on the findings are made, and the limitations of the study are presented. Some directions for future research are also offered.

Chapter 8: Summary and Conclusion

8.1 Introduction

This chapter consolidates previous discussions, presenting the theoretical and practical contribution made by this study to develop better understanding of the factors that influence customers' adoption intentions of IB services in developing countries. Additionally, study limitations and the potential direction for future research are considered.

The chapter is divided into six sections including this introduction. Section 8.2 presents the key findings of the entire research, and links them to the research objectives described in Chapter 1. The theoretical and practical contributions are detailed in Section 8.3, and Section 8.4 offers recommendations for IB stakeholders in developing countries in order to overcome the limited adoption levels of the service in these countries. The limitations of the study are presented in Section 8.5, and finally in Section 8.6, some directions for future research are highlighted.

8.2 Key Findings

Based on the results reported in Chapters 4, 5, and 6 and discussed in Chapter 7, this section presents the key findings of the current study by summarising how the research results support and fulfil the research objectives specified in Section 1.5 in chapter 1.

8.2.1 Research Objective 1

Objective 1 aimed to identify the factors influencing customers' intentions to adopt IB services in Jordan and the causal relationships among them. The results showed that eight variables directly determine customers' intentions to adopt IB services in Jordan, namely, PU, PEOU, TRB, COMP, OBSR, INV, GVS, and IIB. ACC and PFC were found not to be direct predictors of intention; however, the latter has emerged to affect intention indirectly through PEOU.

The previous chapter has shown that these findings support earlier studies on technology acceptance that have reported the importance of the above factors in predicting customers' intentions to adopt the technology under consideration. Moreover, the results of SEM analysis indicate that, among the final model factors (see Figure 5-8 on page 182), customers' personal INV was found to be the most

influential predictor of intention to use IB, both directly and indirectly through PU and PEOU.

Therefore, it is concluded that the more innovative customers are, the more they actively seek information about new technologies within the banking industry, and the more they familiarise themselves with their advantages and methods of operation. According to interview participants, innovative customers are usually young and well-educated individuals who are familiar with IT applications since they use such applications more than other sections of the population due to their need for convenience and efficiency.

The second important antecedent of customers' intentions to adopt IB is PU. Consequently, for IB to be accepted, it should be perceived by customers as providing more advantages in terms of productivity, performance, and effectiveness in conducting bank transactions than traditional banking methods (e.g. ATMs, branch banking, and telephone banking). It is believed that any increase in customers' attitudes of usefulness will positively influence their intentions to use IB. Again, this finding is supportive of previous studies on IB (see chapter 7).

Furthermore, the results revealed that PEOU and INV are important determinants of PU. Squared multiple correlations obtained by SEM indicate that these two factors explain 33.2% of the variance in PU. Together with the results obtained from interviewees, this suggests that IB is more likely to be perceived useful by customers if it is considered to be easier to use than other banking methods. Such a perception would motivate customers to explore the benefits and features of these services and thus have better opportunity to learn more about its usefulness. Additionally, the result suggests that as customers with high personal INV are labelled as active information seekers and more able to cope with higher levels of uncertainty than individuals with low INV, they will be more active in gathering information about IB and thus develop more positive attitudes toward its relative advantages and benefits.

The third important factor in terms of influence on intention is TRB, which stresses the importance of being able to experiment with IB. This ability to try-before-use is associated with greater acceptance by customers. Hence, when customers are allowed to test-drive IB, any uncertainties about the system are reduced, they feel more comfortable, and less stressed in their initial use of it. In addition, TRB

exhibited a significant indirect effect on intention through PEOU. This suggests that the customer's trial use of IB plays an important role in minimising the expected anxiety resulting from using a new system for the first time.

The fourth important factor as revealed by this study results is the customer's perception of the ease of use of IB. This confirms the important role of this factor, reflecting user concerns about the friendliness of the new technology. Davis (1989) argues that when a particular IT perceived by potential users to be less difficult than other applications, it is more likely to be accepted. This study bears this out, being consistent with previous studies on IB where researchers have found that effort-free services could lead to better utilisation of the technology (see chapter 7), and thereby enhance the individual's efficiency through reducing effort and time. Therefore, it has been widely agreed that the PEOU of IB services will increase the probability of its acceptance by customers. PEOU was also found to have an indirect influence on intention through PU, and to be significantly influenced by four factors, namely, COMP, INV, TRB, and PFC. These four factors together explain 43.2% of the variance in PEOU. These results, combined with those from the semi-structured interviews, suggest the following:

- The more compatibility shown by IB services with the customer's past experience, value systems, and lifestyle, the more the customer will be expected to perceive these services as more easy to use.
- Customers would be more likely to perceive IB as easier to use when they have the opportunity to try the service for enough time before formal usage.
- Among other customers, individuals with higher personal INV are expected to develop more positive beliefs about ease-of-use of IB services.
- Affordable costs of purchasing a computer and accessing the Internet would encourage customers to explore the technology's ease of use.

The fifth factor in importance of influence on intention is the degree of information about IB that is available for potential users. This confirms the importance for customers of knowing as much as possible about the application. The direct influence of this factor suggests that providing customers with enough information about IB -its benefits and how to use it - would increase their overall awareness, and hence encourage them to consider adoption in the future.

COMP represents the sixth important factor in respect of IU. This suggests that customers who feel the use of IB to be compatible with their overall lifestyle are more motivated to it. In addition, COMP is shown to have an indirect significant influence on intention through PEOU as mentioned above.

The results also highlighted OBSR as the seventh influential factor on intention, thereby suggesting that customers' ability to discuss their experience with IB with others in their social circle positively influences their future intentions toward the use of these services.

The last factor directly influencing customers' intentions to adopt IB in Jordan as revealed by SEM results is GVS, when compared to other factors, GVS presents the least significant direct effect on intention. Nonetheless, it does confirm the importance of the government role in promoting the adoption of IB services, especially in the context of developing countries. Together with the results obtained from the semi-structured interviews, this suggests that GVS would enhance customers' trust in IB as well as providing credibility to this type of banking channel.

Lastly, the SEM results showed that PFC is the factor that least affects intention since it only exhibits indirect influence through PEOU. Widespread usage of personal computers and the Internet due their affordable costs in Jordan accounted for the absence of any direct influence of such costs on customers' future intentions to use IB. However, the low IB costs do make for a more economical alternative to traditional banking methods, and therefore, make IB an easy-to-use option for banking.

8.2.2 Research objective 2

The second objective in the current study was to explore the differences between IB users and non-users. In this respect, all the demographic factors examined in this study exhibited some influence on the adoption process. Gender, age, education, occupation, and income, all proved to be influential in determining customer intentions to use IB services in Jordan.

In this regard, the descriptive analysis and Chi-square test results revealed the following:

- Male customers are more willing to use IB services than females.

- The majority of IB users are adults of age 21 to 40.
- Customers with high education levels are more willing to use IB services than less educated customers.
- Private sector employees are most willing to use IB services followed by public sector employees, students, and self-employed customers.
- Finally, customers with high-income levels are more willing to use IB services than customers with lower levels of income.

Since the above-mentioned demographic characteristics are significantly influential on customer intention to use IB, better marketing strategies could be achieved as bank executives can use this information in the segmentation of their potential Internet banking customers.

Additionally, independent t-test results revealed that users of IB in Jordan were significantly different from non-users in terms of their attitudes relating to all the variables investigated. Specifically:

- Users considered IB services more productive, quick, beneficial, and effective than non-users.
- Users perceived the service easy to learn, easy to understand, and flexible more than non-IB users.
- Users placed a higher level of importance on the need to test-drive IB services before actually using them than non-users.
- Users perceived IB to be more compatible with their daily lives and work habits than non-users.
- Users perceived the financial cost involved in conducting IB transactions to be more reasonable than non-users.
- IB services were observable and noticeable more by users than non-users, and users faced less difficulty in explaining why using these services may or may not be beneficial for them than non-users.
- Users were more innovative in terms of being open to new experiences and more accepting of invitations to try out new technologies than non-users.
- Users and non-users perceived the importance of the government role in supporting IB applications in the country in the same manner.
- Users were more aware of using the service and had more confidence in its use.
- Users, on average, were more able to access IB than non-users.

- Although users and non-users agreed about their intentions to use IB in near future, non-users were more sceptical than users.

8.2.3 Research Objective 3

The third objective aimed to test and validate the research model as one that could effectively explain and predict customers' behavioural intentions towards IB adoption. The results revealed that the final research model explains a high percentage of the variance in intention to use IB when compared with models developed by other researchers. This means that the study has succeeded in capturing the main important factors affecting customers' intentions to use IB. Indeed, the model was shown to explain 61.7% of the variance in this respect. Furthermore, 33.2% of the observed variance in PU is explained jointly by PEOU and INV, and 43.2 % of the variance in PEOU is accounted for by COMP, INV, TRB, and PFC. Overall, the results of the current study show that the proposed model has good explanatory power and is therefore robust in predicting customers' intentions to adopt IB services.

Furthermore, results of the qualitative phase stress the importance of the research model factors in customers' technology acceptance behaviour and have extended the understanding of these factors based on interviewees' perceptions as presented in table 8-1 on the next page. These perceptions as established in this study have proven to be a simple, yet comprehensive, way to understand factors that found to affect customers' intentions to adopt IB services by reflecting the nature and characteristics of these factors (for more details see chapter six). Based on these perceptions, meaningful implications can be drawn concerning the way IB services adoption should be conceptualised and assessed by bank managements as well as other concerned parties.

Table 8-1: Interviewees' Perceptions about the Study Factors

Factor	Interviewees' perceptions
Perceived Usefulness (PU)	- Convenient service, which characterised by: Autonomy, access anywhere/ anytime, no need to queue, protect personal privacy, and maintain personal safety. - Quick service that help in managing time efficiently. - Timesaving service that resulted in less stress and more efficient banking transactions.
Perceived Ease of Use (PEOU)	- Easy to use IB website, which is reliable, has clear instructions, and with few errors. - No need for special Internet and computer skills, which means less mental stress following easy to remember procedures.
Trialability (TRB)	- Become familiar with the service in order to be aware of the service capabilities and become more self-confident in using it. - Customers' training sessions in order to create better first-time use minimise any related uncertainty, and to establish effective future practices. - The availability of free 24/7 help-line to provide advice when needed which could enhance the trust in the bank as well as minimise any fears of unexpected problems.
Government Support (GVS)	- Enhance customers' trust in IB services by developing an appropriate legal framework that supports e-commerce transactions in general and IB in particular. Such framework should ensure customers' privacy and security throughout their IB involvements. - Develop a proper technical infrastructure in the country in order to facilitate IB applications. For example, Internet coverage and requirements solve any technical problems and deployment barriers of the Internet in the country. - Enhance the quality of IB services through the continuous coordination among all involved groups.
Information about IB (IIB)	- Availability of enough amount of information regarding safety and security, IB relative benefits, and how to start using the service in order to enhance the customer self-confidence as well as his/her trust in the bank.
Perceived Financial Cost (PFC)	- Reasonable pricing of Internet access and related equipment increase the popularity of IB services among bank customers, which in turn lead to more adoption.
Compatibility (COMP)	- Flexible and convenient service that can use anytime/anywhere. - Can independently perform many banking transactions quickly and accurately.
Observability-Result demonstrability (OBSR)	- Social value through enhancing one's social status. - Less psychological discomfort. - Learn others as well as learn from them how to use the services.
Innovativeness (INV)	- Innovative individuals are usually well educated; young who are familiar with technology and looking for convenient and efficient ways of doing things.

8.3 Contributions to Knowledge

The findings of the present study are based on empirical data collected from customers in Jordan, a developing country of the Middle east, and as it is believed that Jordan has much in common with other developing countries in the region and in the world in general, there is a good justification for the claim that these findings are applicable to the diffusion of wider set of Internet-based applications in other countries of the Middle East and in other developing countries in general.

This study contributes to the existing body of knowledge of technology adoption, and IB adoption in particular. Specifically, it provides a number of theoretical and practical contributions, which can be seen to benefit technology acceptance researchers as well as the stakeholders of any technology diffusion project in the developing countries.

8.3.1 Theoretical Contributions

Technology acceptance literature shows scarcity of empirical research regarding the determinants of individuals' use of IB in developing countries. This study examined the viability of the proposed research model in explaining customers' behaviour in developing economy settings by taking Jordan as an example. Thus, the results of present research contribute to the existing body of knowledge by filling this important gap by taking on a theory-based empirical investigation of the influencing factors of IB services acceptance by customers in the context of developing economies.

Another major contribution of this study to the existing theory is the validation of the research model with empirical data collected from bank customers in Jordan a Middle Eastern developing country. An integrated technology acceptance model based on the TAM and the DIT plus four external variables (INV, GVS, IIB, and PFC) was developed. Nine variables were synthesised into a single integrated model, which then was tested for its predictive and explanatory power to determine what factors influence customers' intentions to adopt IB services in Jordan and in other developing countries with similar circumstances. The findings of the current study show that the final refined model is valid and exhibits good explanatory power in predicting the behavioural intentions of customers to adopt IB services.

Most of the existing technology acceptance models including the TRA, TPB, TAM, and DIT, lean towards examining the relationship between the innovation attributes and the user's intention to adopt this innovation. Therefore, they simplify individuals' adoption decisions by overlooking the importance of personal traits and other external variables to the adoption behaviour. This study contributes to the technology acceptance literature by investigating the role of the potential user's personal characteristics (INV and PFC) and external environment variables (GVS and IIB) on customers' innovation adoption behaviour. It proposes a technology acceptance model that extends the traditional TAM and DIT models by including user-related and external environment-related variables in addition to the technology-related variables from both the TAM and DIT. Consequently, the study confirms the importance of the external variables as factors affecting behavioural intention to adopt a particular IT. The findings of this study shed light on the acceptance potential of a new technology that is characterised by a high degree of uncertainty and lack of human interaction. Therefore, the model developed could be applied in other situations where the intention is to understand the potential user's motives to accept similar new technologies.

Furthermore, this study contributes to theory by providing new insights into the factors that influence IB adoption. The study has identified nine factors as the most important predictive factors of customers' intentions to adopt IB. These factors, based on the degree of their importance, are in the following order: innovativeness, perceived usefulness, trialability, perceived ease of use, information about IB, compatibility, observability-result demonstrability, government support, and perceived financial cost.

Considering the limited empirical research on the integration of two or more technology acceptance models in general, this study tested an extended TAM/DIT integrated model for the first time in the context of a developing Middle Eastern country, namely Jordan. As a result, the study expands existing knowledge by providing a new perspective to the TAM/DIT integration through its validation of the viability of an integrated version of the TAM and DIT, which were originally conceived and validated in Western cultures, in explaining the behavioural intention towards technology adoption in non-Western contexts. As a result, the validated model provides a better understanding of IB adoption, and simultaneously enhances the explanatory power of both the TAM and DIT.

Another theoretical contribution of the current study is its examination of the differences between IB users and non-users. While the previous technology adoption research mostly focused on users of IT applications, this research attempts to expand the literature by examining the differences between users and non-users in terms of their perception of the various factors examined in the study as well as in their demographic characteristics. Since the results revealed that users and non-users are significantly different on all comparison factors, this suggests that different considerations would be necessary when studying each group's adoption behaviour in the future.

In addition, one major contribution of this study is the development of an instrument designed to measure the individual's perception towards the factors influencing his/her intention to adopt an IT application. The instrument development process included reviewing the related literature for empirically confirmed items, choosing appropriate items, translation to Arabic using the back translation method, pilot testing, and finally testing the instrument empirically. Moreover, several deliberate steps were involved in the validation of the developed instrument scales. Initially EFA was employed to identify the major IB adoption dimensions, and then CFA was used to validate the underlying structure of the main constructs of the instrument as well as to assess the composite reliability and construct validity.

The outcome was a 37-item instrument (see Appendix 3A on page 321) involving ten scales, one dependent variable, and nine independent variables. High internal consistency levels were reported among all constructs using two reliability indicators (Cronbach's Alpha and composite reliability). The constructs of the final proposed instrument also demonstrated high convergent, discriminant, and nomological validities.

Therefore, it is believed that this instrument can be used with confidence by technology acceptance researchers in Arab and Islamic countries (wherever English or Arabic are the spoken languages) that have a similar culture and share the same technology adoption factors, as a vehicle to investigate how individuals' various attitudes and perceptions affect their intentions to use IT innovations.

From the contextual perspective, this study fills the gap in IB adoption literature in the Middle East by examining the factors that might impede or encourage the adoption of these services among bank customers. The study applied a novel,

sophisticated nationwide research design (in Jordan) based on a mixed-methods approach. Two data collection phases were applied-quantitative data was collected in the first phase using a survey questionnaire, and qualitative data was gathered thereafter via a semi-structured interview exercise. Linkages were made within and across the two research phases in order to obtain a clearer picture of IB adoption in the region. Moreover, to the best of the researcher's knowledge, this study is the first in the Jordanian context to examine both users and non-users of IB, which in turn contributes to the theoretical appreciation of how users' and non-users' attitudes and perceptions of IB vary according to their demographics.

Finally yet importantly, this research has evaluated the applicability of a proposed integrated model based mainly on TAM and DIT, which were developed to study innovation diffusion in other parts of the world, to understand various innovation adoption factors in the context of developing countries. This research filled the knowledge gap in IT acceptance research by investigating various adoption factors of IB in these developing countries, in which research in this direction is still limited (Sharma and Govindaluri, 2014).

Customers' personal innovativeness and perceived usefulness are the most influential factors for the adoption of IB services amongst bank customers. Nevertheless, other issues and concerns have been highlighted by the qualitative findings in the second phase of this research. For instance, the lack of IB awareness is a major concern amongst bank customers in Jordan, whereas Internet accessibility level and cost are reasonable and affordable by the majority of customers in the country. While this research has contributed to the literature by presenting new insights into IB adoption in this little-explored region of the world, future research may need to focus on this issue from other perspectives (the bank and/or the government) so that concrete conclusions can be drawn.

Overall, this research has utilised findings from prior innovation adoption studies in association with findings from its quantitative and qualitative phases in order to provide a holistic view of IB adoption in Jordan as an example of a Middle Eastern developing country. Therefore, this research has provided new insights into the adoption process of IB in Jordan, which could be generalised to other developing countries, particularly the Middle East countries. In conclusion, the research findings have offered new insights into how IB diffusion is influenced by various determinants

from different angles and how these effects are perceived by customers in a developing country context.

8.3.2 Practical Contributions

The study's findings have implications for IB stakeholders. The results of this research have offered a comprehensive framework to assess different conditions under which IB operates in order to assist in identifying potential important factors for customers and facilitating a better return on investments for bank and financial Institutions. Moreover, and in order to ensure the successful implementation of IB services, it is important for banks to acquire a comprehensive understanding of their customers' predisposition to accept this new banking channel. It is believed that this understanding will enable banks to become more effective in allocating their resources given the large investments involved in providing IB services. In this regard, the study has identified nine important factors that influence customers' intentions to adopt IB services in a Middle Eastern developing country (Jordan). Understanding the influence of these factors on intention and the causal relationships among them will facilitate a more in-depth appreciation by bank executives in developing countries of the potential users' requirements, which should help in their development of appropriate strategies aimed at increasing future adoption rates.

Additionally, the study provides valuable insights into how to enhance customers' acceptance of IB services by indicating the relative importance of the factors influencing intentions. Thus, decision-makers could consider the differences in the relative importance of these factors to the customer's behavioural intention when they design their marketing strategies. For example, marketers should pay more attention to innovative individuals as these people usually show more readiness and willingness in using new technology applications. On the other hand, semi-structured interview results highlighted additional valuable understanding of how customers perceive these factors, which could be translated into more practical steps in order to ensure that IB services effectively meet customers' needs.

The study also provides IB decision-makers with a better understanding of the differences between IB users and non-users not only in their demographic characteristics, but also in their attitudes towards the various factors identified to influence IB adoption. Hence, banks can consider these differences and their

respective influence on the target customers' behavioural intentions when designing and implementing IB applications.

Furthermore, the study has developed and validated a technology acceptance model in a developing country context, which identifies the most important factors influencing customers' intentions to adopt IB services. The model could be applied to other developing countries with a similar cultural context, thereby providing them with an effective tool to enhance the acceptance of IT applications in general and IB in particular in these countries.

Finally, another major contribution is the study's presentation of a set of specific strategies designed to overcome the main research problem, which is the low adoption rate of IB services by customers in developing countries. These suggested strategies are offered as practical recommendations in the following section.

8.4 Recommendations

The literature review and the empirical findings indicate that banks in developing countries cannot ignore IB technology if they seek to remain competitive in the industry. In this study, the important factors of Internet technology adoption by customers and the characteristics of users and non-users were identified and explained. Based on that, a number of recommendations for commercial banks as well as the government in such countries are suggested as follows:

- This study results would be useful for bank managers, as it will support their decisions on IB services deployment by providing them with important information regarding the factors that may influence customers' adoption of such services. For example, banks should build IB systems that are well designed, user-friendly, easily accessible, and compatible with their customers' lifestyles. In order to create a compatible service with customers' needs and interests, banks could also personalise IB accounts by offering several templates on their IB websites to cater for different types of customers.

- In order to increase its' adoption among customers, banks' strategies may lead to more emphasis being placed on designing and offering more useful IB services. For example, the results of this study showed that the

convenience of IB services contributes to the success of IB services. Results of semi-structured interviews also revealed that customers usually define convenience in terms of access anytime/ anywhere, autonomy, not having to wait in queues, personal safety, and privacy. Therefore, to be competitive and successful, banks should focus more on continuous improvements of their services to be in line of what customers consider convenient IB services. Moreover, banks should ensure that their services are quick enough in order to save time for customers. Customers consider speedy IB services to enhance their efficacy in time management as noted by most interviewees.

- Perceived ease of use was reported to associate strongly with behavioural intention to adopt IB services. Therefore, it is important for bankers to focus on increasing their consumers' perceptions of the ease of use of IB services. This could be done through training customers how to use the system in order to improve their knowledge about IB and at the same time increase favourable perceptions of ease of use by convincing them that these services are not too complicated to perform. Moreover, interview results indicated that customers value the role of bank website in making them feel how IB is easy to use. Therefore, it is believed that ease of use will depend on the web content and web design of the bank's website; this will determine the user-friendliness of the service. Therefore, IB service providers should ensure that their websites are providing the necessary information in a form of clear instructions needed to fulfil a particular banking transaction with few transactional and technical errors as possible.

- In order to create better first-use experience as well as ensuring a healthier IB future adoption, banks should give the opportunity for their customers to experience and become familiar with the service, before starting to use it. This could be done through offering some training sessions in which potential users could be offered basic training about the service including how to create an IB account and what procedures must be followed to perform online transactions. Moreover, banks could provide a free help line for their customers in order to address any IB related issues. Potential threats to the security and privacy could also addressed in these sessions in order to inform customers how to avoid such threats as well as how to deal with such potential situations.

- Banks should put more effort into building customer awareness of the IB services that they offer. They should develop appropriate promotional channels in order to introduce these services for a wider customer base as well as to educate them about their benefits and usefulness. Information about IB could be provided by bank staff at the branches as well as via other media options such as web pages, social media, leaflets, brochures, etc. The information should include references to safety and security, convenience; accessibility anywhere anytime, timesaving; efficiency, speed; better time management and what banking services are offered by IB.

- Marketers in banks should identify their potential customers and target them in their promotional endeavours to increase the use of IB. Innovative customers are believed to be the early adopters of such services. Therefore, as a starting point and to create demand for IB services, this type of customer should be the priority of any marketing campaign. This study also provides bankers with information about the differences between IB users and non-users. This study compared them according to gender, age, occupation, education, and income in regard to their behavioural intentions to adopt IB services. Thus, decision makers in banks should consider these differences when they design their marketing strategies for IB. For example, since they are believed to be more likely to accept IB services, young well-educated males (aged 21-41), with moderate-to-high income level, and working as private or public sector employees, should be targeted through bank marketing strategies. Marketers can check the bank customers' database in order to identify these target customers and make efforts to contact them through different communication channels such as e-mails, phone, mail, or personal contact in order to inform them about IB and to encourage their interest.

- In order to increase IT acceptance in developing countries, technology should be considered not only as a business issue, but also as a governmental strategy issue to ensure that an encouraging environment is created. Given the current increase in the number of Internet users in the Middle East as well as the governments' considerable support for IT and communications infrastructures, the growth of such new technologies could involve reviewing the current policies and initiatives. Although the results

showed good level of government support to IB in Jordan, this support should be reinforced in order to increase the acceptance of IB services in the country and other developing countries. For example, the government should assess the adequacy of the current e-commerce laws and regulations and develop new ones as necessary; thereafter, these laws and regulations should be promoted by both the government and the banks in order to boost customers' trust in IB and to increase their perceptions of safety and security.

- Governments in developing countries should provide more awareness-raising programmes and disseminate pertinent information relating to IB and its adoption and implementation among customers as well as banks. Public awareness campaigns promoted by the government should be initiated to enhance the level of public information and knowledge about IB services, their advantages, and safety and security safeguards for customers and incentives, subsidies and financial and technical support relating to IB development for banks in these countries.

- The Central Bank of Jordan and similar regulatory bodies in other developing countries, should introduce a set of co-ordinated practices to be followed by IB service providers in their countries in order to improve the quality IB services as well as providing a system that would minimise the connection interruptions and provide an overall reliable and secure communication infrastructure. Developing a system of incentives for banks regarding their IB policies and practices would also help in this regard.

- The success of any technology-based service is dependent on the availability and reliability of the telecommunication infrastructure that is being used to deliver these services. Therefore, an appropriate and adequate technical infrastructure should be ensured. Hence, it is recommended that the government should promote and help to create an open and competitive market for telecommunications industry in the country. As a result, the governments in developing countries should take special measures to encourage competition within the telecommunications industry, reducing Internet connections and communication costs in order to facilitate Internet access for bank customers.

8.5 Research Limitations

Like any other research, this study is subject to some limitations, which need to be taken into consideration when attempting to generalise its findings to the whole research population or trying to apply its proposed model to other research contexts.

Firstly, due to the absence of complete, accurate, and current information concerning all commercial bank customers in Jordan, the total Jordanian population was used as the sampling frame. Although the researcher made all efforts to overcome this limitation by including only subjects who were bank customers, it is acknowledged that the size and representativeness of the sample to the research population would have been more accurate if they had been built on a different strategically focused sampling frame, and thus been capable of producing more generalizable results.

Secondly, the restrictions on resources (time, funds, and effort) meant that only twenty of Jordan's eighty-nine districts were included in the process of sampling for the questionnaire survey. Although the findings can be generalised to the overall research population with confidence, the researcher is aware that the inclusion of more geographical areas could have enhanced this generalisability.

Thirdly, the generalisability of the current study findings is limited to its specific context. Other countries may have different circumstances and different IB services, which are subject to different legal and regulatory influences. Therefore, the contextual differences should be taken into account when trying to generalise the findings of this study or applying its proposed model to other countries.

Fourthly, great difficulty was encountered in arranging semi-structured interviews with bank customers, and many questionnaire respondents who were invited to participate in the follow-up interviews were reluctant to do so because of their concerns about their financial privacy and security. Therefore, the researcher relied on social networks in order to identify and recruit the most appropriate individuals who were willing to co-operate. Clearly, extensive efforts were made to assure the validity and reliability of the interview data and to choose the most appropriate interviewees, but the possibility exists that individuals who agreed to co-operate and thus participated in the semi-structured interviews might not be the best sources of qualitative data.

Fifthly, since the current study model was developed and validated to predict and explain the variance in customers' behavioural intentions towards using a particular technology in a voluntary setting, care should be taken when applying it to examine the individuals' acceptance of new technologies in mandatory settings where using the technology is part of an individual's job.

8.6 Directions for Future Research

In order to build on the findings achieved by this study, this section offers a number of suggestions and areas for future research.

1- With the intention of improving the generalisability of the results of this study, the conceptual model of the current study could be used to investigate the factors influencing the individuals' intentions to adopt other IT applications such as e-government, e-commerce, e-shopping, e-learning, etc. in the Middle East region countries.

2- To enhance the external validity of the proposed model of this study, future research could be directed to examine the acceptance of new technologies in other countries in the region with a similar background to Jordan, such as the Gulf countries. Another interesting investigation in this connection would be the replication of this study in one or more countries with different cultural settings such as other developing or developed countries. This would enhance the understanding of cross-cultural effects on the adoption of new technologies as well as verify the robustness of the research model across different cultural settings.

3- Since the data in this study was collected at a single point of time through cross-sectional survey, in-depth longitudinal research would be useful in order to determine whether customers' attitudes toward IB adoption change over time. This could be achieved by applying the research model to examine customers' intentions to adopt IB at different points of time and comparing the findings for different data collection periods.

4- Since Islamic banks in Jordan and in other Islamic countries are providing IB services for their customers who might be different from commercial bank

customers in their demographics and perceptions of IB, research into this specific context is recommended to provide a clearer picture of IB adoption throughout these countries.

5- As this study examined the behavioural intentions of individual bank customers toward IB, a study to investigate the attitudes and perceptions of potential corporate users of IB, using the model developed in this research, would offer some complementary findings. A comparison between individual and corporate customers' attitudes and perceptions concerning IB services could enhance the generalisability of the results and simultaneously provide a clearer understanding of the acceptance of IB in developing countries.

6- As this study has developed and validated a measurement instrument to predict customers' acceptance of new technologies in general and IB in particular in both Arabic and English speaking countries, further validation studies in different technology settings and different contexts would be useful in order to improve the external validity of this instrument.

7- Despite the fact that the proposed model is able to provide valuable insights regarding the acceptance of new technologies, future research could be directed towards improving its predictive power by including more potentially important factors such as national culture, perceived risk, social influence, trust, and self-efficacy.

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Appendices

Appendix 2A: Summary of Selected Previous Studies of IB Adoption

Study	Country	Sample	Model(s)	Key Results
Sathye (1999)	Australia	Individual customers and Business customers	None /Descriptive study	- Security concerns and lack of awareness about IB and its benefits were the main obstacles to the adoption of IB. - Accessibility to computers/ Internet was not a major factor affecting adoption of IB.
Tan and Teo (2000)	Singapore	Internet users	Integration (TPB/ DIT) + additional variables	- Relative advantage, compatibility, trialability, risk, trust, and government support toward using the Internet were found to influence intentions to adopt IB services. - The majority of IB users were mainly males, young, educated, and individuals with moderate to high monthly income.
Karjaluoto et. al (2002a)	Finland	Bank customers	None /Descriptive study	- A large number of non-users did value more personal service, believed that IB is inexpensive and secure to use. - New users did value speed and autonomy in IB, they considered it reasonable in term of cost. - Old users were using IB mostly because of time and money savings. - While users had more positive beliefs about IB than non-users, old users had more favourable beliefs about technology than new users and non-users.
Karjaluoto et. al (2002b)	Finland	Bank customers	None /Relational study	- Past technology experience and attitudes towards computers influenced intention and actual use of IB. - Occupation and income were significant factors to influence IB behaviour. - Users were mostly highly educated, young, working males, and with high income.

Suh and Han (2002)	South Korea	IB users	Extended TAM	- Perceived usefulness, perceived ease of use, and trust were significant determinants of attitudes towards using IB. - Behavioural intention to use IB was highly related to attitude, perceived usefulness, and trust.
Chau and Lai (2003)	Hong Kong	Banking professionals	Extended TAM	- Perceived usefulness, perceived ease of use exhibited significant direct effect on users' attitudes toward accepting IB services. - Accessibility was a strong predictor of perceived ease of use. - Task familiarity, Personalization, and Alliance Services exhibited positive influence on Attitude through significant effect on perceived usefulness.
Gerrard and Cunningham (2003)	Singapore	Bank customers	Extended DIT	- Relative advantage variables (social desirability, economic benefits, and convenience), complexity, computers competency, confidentiality, accessibility, and innovativeness all found significant factors affecting both adopters' and non-adopters' adoption of IB. - Adopters are more financially innovative and more competent in using computers than non-adopters, adopters also perceived IB more convenient, less complex, and more compatible with their daily lives.
Mattila et al. (2003)	Finland	Bank customers	None /Descriptive study	- Mature customers were late adopters of IB due to practical problems in using the service, concerns about the expensive start-up cost, security, and lack of personal service. - Users were mostly younger, educated, wealthy, and with higher job positions than non-users.
Sohail and Shanmugham (2003)	Malaysia	Bank customers	None /Descriptive study	- Internet accessibility, awareness, attitude towards change, computer and Internet access costs, trust in the bank, security concerns, perceived ease of use, and convenience were found the major factors to affect IB adoption. - IB users were mainly wealthier than non-users.

Wang et al. (2003)	Taiwan	IB users	Extended TAM	- Perceived usefulness, perceived ease of use, and perceived credibility had significant influence on behavioural intention to use IB. - perceived ease of use found to be the most important predictor of intention to use. - Computer self-efficacy was a significant predictor of perceived usefulness, perceived ease, and credibility.
Akinci et al. (2004)	Turkey	Academic staff of a higher education institution	None /Descriptive study	- Significant differences between IB users and non-users with respect to demographic profiles, attitudinal properties, and preferences for service delivery channels. - Users were mid-aged, male, more technology-oriented, and convenience-seekers. - Non-users were younger or older than users, preferred traditional banking channels, and did not trust IB to conduct banking transactions.
Brown et al. (2004)	South Africa	Internet users and MBA students	Integration (TPB/ DIT) + additional variables	- IB adoption was predicted by attitudinal and perceived behavioural control factors, but not by subjective norm. - Compatibility, trialability, and self-efficacy were significant predictors of adoption behaviour. - Technology support and government support had no influences on adoption.
Chan and Lu (2004)	Hong Kong	University students	Extended TAM	- Perceived usefulness and perceived ease of use had direct significant influence on intention to adopt/continue-use of IB. - Subjective norms and computer self-efficacy indirectly affected the intention to adopt IB through perceived usefulness and perceived ease of use respectively. - Perceived ease of use influence on intention was only through perceived usefulness. - Image had a significant effect on intention through perceived usefulness. - Observability had significant effect on perceived usefulness for users rather than non-users.

Kolodinsky et al. (2004)	The United States	Household consumers	Integration (TAM/ DIT) + additional variables	- Relative advantage, complexity/simplicity, compatibility, observability, risk tolerance, and product involvement were important factors for adoption. - Demographics i.e. income, assets, education, gender, marital status, and age positively affected the adoption behaviour.
Pikkarainen et al. (2004)	Finland	Bank customers	Extended TAM	- Perceived ease of use, perceived enjoyment, and security and privacy had no significant impact on the acceptance of IB. - Perceived usefulness and the amount of information on IB were found to be the most influential factors explaining the use of the service.
Eriksson et al. (2005)	Estonia	Bank customers	Extended TAM	- Perceived usefulness found the primary reason for using IB services. - Perceived ease of use did only affect the use of IB indirectly through perceived usefulness. - Trust found to influence the use of IB through perceived usefulness and perceived ease of use .
Jaruwachirat-hanakul and Fink (2005)	Thailand	Internet users	Integration (TPB/ TAM) + additional variables	- The attitudinal factors i.e. feature of the web site and perceived usefulness found to encourage the adoption of IB. - Perceived behavioural control factors i.e. external environment (Internet infrastructure and facilities, and the lack of government support) found to discourage the adoption. - Gender, educational level, income, Internet experience, and IB experience were significant moderating factors for the adoption of IB.
Laforet and Li (2005)	China	Bank customers	None /Descriptive study	- Low awareness of new banking technologies among both users and non-users. - Non-users had more concerns about confidentiality and security more than users. - Among the security concerns, hackers and fraud were identified as the main concerns for not using IB services. - Prior computer and Internet experience had positive impact on the adoption of IB.

Lassar et al. (2005)	The United States	College students	Extended TAM	- Personal innovativeness and Internet self-efficacy were significantly related to IB adoption. - While income was significantly and positively related to IB adoption, neither education nor age showed such positive effect on adoption behaviour.
Gerrard et al. (2006)	Singapore	Non-users of IB services	Integration (TAM/ DIT) + additional variables	- Risk, no perceived need, lack of knowledge of service, inertia, inaccessibility, lacking the human touch, pricing concerns, and IT fatigue were all reported as reasons for not using IB. - Internet experience, IIB, gender, and education found to influence customer's future decision regarding IB adoption.
Lichtenstein and Williamson (2006)	Australia	Bank customers	None /grounded theory study	- Convenience in terms of timesaving was the main motivator for customers' adoption of IB. - Customers required immediate, interactive, and knowledgeable customer support for IB. - Customers still unaware of the existence, features, relative advantages and benefits of IB. - Prior Internet experience, positive outcome expectancies and Internet use were important factors to adoption.
Ndubisi and Sinti (2006)	Malaysia	Internet users	Extended DIT	- While importance to banking needs, compatibility, and trialability were significantly and positively associated with adoption, complexity was significantly and negatively associated with adoption of IB. - Only utilitarian outcome of the IB website rather than hedonic outcomes was significantly associated with adoption intention.
Amin (2007)	Malaysia	Undergraduate students	Extended TAM	- Perceived usefulness, perceived ease of use, and perceived credibility were significantly associated with behavioural intention to adopt IB services. - While perceived ease of use had influence on both perceived usefulness and perceived credibility, computer self-efficacy found to be a significant determinant of perceived usefulness and perceived ease of use.

Hernandez and Mazzon (2007)	Brazil	Bank customers	Integration (TAM/ DIT) + additional variables	- Relative advantage of control, compatibility with lifestyle, image, subjective norm, self-efficacy, relative advantage of security and privacy, result demonstrability, and trialability were significant determinants of intention to use/continue to use IB.
Yu and Lo (2007)	Taiwan	Bank customers	Integration (TAM/ DIT) + additional variables	- Perceived trust, perceived usefulness, and perceived convenience were significantly influenced customer attitudes towards IB adoption. - While perceived ease of use did not affect adoption of IB directly, it was significantly influenced perceived usefulness.
Cai et al. (2008)	The United States	Household consumers	None /Descriptive study	- IB users had a lower mean age and a higher mean family income than nonusers. - Perceived advantages of e-banking services, including IB, had more impact on consumers' use of IB than other characteristics of e-banking. - Perceived problems related to e-banking services were more important than the perceived advantages in shaping consumers' attitudes toward IB.
Gounaris and Koritos (2008a)	Greece	Internet users	Integration (TAM/ DIT) + additional variables	- Relative advantage, voluntariness, perceived ease of use, and Image appeared to be significant parameters that were necessary in order to improve the explanatory power of the decision to adopt IB. - Personal innovativeness, shopping orientation, education, and occupational status as well as gender, were important predictive variables at the individual consumer's level. - Present and potential IB users were males, with a college or university education, working in both private and public organizations, highly innovative and utilitarian buyers.

Padachi et al. (2008)	Mauritius	Bank Customers	None /Descriptive study	- The only significant difference between IB users and non-IB users on demographic variables was monthly income. - Ease of use, reluctance to change, trust, personal relationship with banker, cost of computers, Internet accessibility, convenience of use, and security concerns were identified to affect IB adoption. - Significant relationships were between awareness, Internet accessibility, and length of personal relationship with the bank staff, 'post graduate' education level, and income group with the usage of IB.
Poon (2008)	Malaysia	Bank customers	None /Descriptive study	- Age, education, income, computer literacy, and Internet accessibility were all had significant relationships with the usage of IB. - Convenience, accessibility, bank management and Image, feature availability, cost, privacy and security, design, content, and speed were factors that significantly affecting the adoption of IB. - Among all factors, accessibility, convenience, design and content were sources of satisfaction, while privacy and security were the major sources of dissatisfaction.
Al-Somali et al. (2009)	Saudi Arabia	Bank customers	Extended TAM	- While perceived usefulness and perceived ease of use were correlated with the attitudes towards use, quality of the Internet connection, awareness of IB and its benefits, social influence, and computer self-efficacy were all significant determinants of perceived usefulness and perceived ease of use. - While perceived usefulness had significant correlation with intention to use or adopt, education, trust, and resistance to change were also correlated with the attitude towards use. - Social influence and awareness of IB services and its benefits were determinants of perceived usefulness. Self-efficacy and quality of Internet connection did have significant effects on perceived ease of use.

Chatchawanwan et al. (2009)	Thailand	Bank customers	Integration (TAM/ DIT)	- While perceived usefulness, compatibility, relative advantage, and trialability, had positive influence on the intention to adopt IB, complexity had negative effect on the intention. - Perceived usefulness and perceived ease of use had positive relationship with attitudes as well as on each other.
Ozdemir and Trott (2009)	Turkey	Internet users	Integration (TAM/ DIT) + additional variables	- Perceived usefulness, perceived ease of use, Internet experience, high income, and long working hours were factors associated with IB adopters. - IB adopters and non-adopters had different perceptual, experience-related, socioeconomic, and situational characteristics. - Respondents who use the Internet more frequently perceived IB to be more useful.
Chong et al. (2010)	Vietnam	Bank customers	Extended TAM	- Perceived usefulness, Trust, and government support were found to have a significant and positive relationship with consumer intention to use IB. - Perceived ease of use had no significant relationship with consumer intention to use IB.
Lai et al. (2010)	Hong Kong	Graduate students	Integration (TAM/ DIT)	- Perceived usefulness and perceived ease of use were determinants of attitudes. Attitudes, relative advantage, compatibility, and complexity had significant influence on intention to use IB. - Relative advantage was found to be a determinant of perceived usefulness. - Compatibility was found to be important to perceived ease of use. - The integrated model was better than either TAM or DIT alone in explaining the variance in IB acceptance.
Nor et al. (2010)	Malaysia	MBA students	DIT	- Relative advantage, compatibility, and trialability of IB positively did affect the attitude toward using the technology. - Attitude about IB positively significantly influenced the intention to use the technology.

Tan et al. (2010)	Malaysia	IB users	Extended TAM	- Social influence, perceived usefulness, trust, and perceived ease of use were found to influence the intention to adopt IB. - Perceived financial cost and perceived Security risk were not supported to influence intention.
Aslam et al. (2011)	Pakistan	Internet Users	None /Descriptive study	- Lack of personal relationship with bankers, low perceived value of the IB, and lack of knowledge and information were the most significant barriers in adoption of IB. - Lack of security, risk of hacking, fear of incomplete transactions, and high financial risks were perceived to be moderately significant barriers.
Nasri (2011)	Tunisia	Bank customers	None /Descriptive study	- Perceived convenience, perceived risk, perceived security, and Internet knowledge had significant effects on behavioural intention to use IB. - Demographic factors specifically, occupation and income significantly influenced IB behaviour.
Nor et al. (2011)	Romania	Bank customers	Integration (TAM/ DIT) + additional variables	- Perceived usefulness, compatibility, technical resources, security, cost, and time had significant impact on intention to use Internet in banking transactions. - Perceived ease of use and Self-efficacy did not affect intention to use the technology.
Raza and Hanif (2011)	Pakistan	Internal customers (employees) and External customers of banks	Extended TAM	- Perceived risk, security and privacy, and government support had significant impact on internal customers' intentions to adopt IB. - Perceived usefulness, information of IB, perceived risk, government support, and security and privacy had significant influence on external customers' intentions to adopt IB services.

Rusu and Shen (2011)	United Arab Emirates	e-banking users	Extended TAM	- Perceived usefulness and perceived ease of use were validated as determinants of attitudes which in turn found to be a determinant of intention towards IB adoption. - Computer self-efficacy and convenience were important factors that determined the Perceived ease of use for IB customers in the United Arab Emirates. - Security and image had no influence on Perceived usefulness as was hypothesised.
Anuar et al. (2012)	Malaysia	Bank Customers	Extended DIT	- Relative advantage was the most influencing factor for IB adoption, followed by compatibility and complexity. - The majority of the Muslims customers find human tellers and ATM important with regard to their banking activities. They still not using IB and had some security concerns about the services.
Giovanis et al. (2012)	Greece	IB potential users	Integration (TAM/ DIT) + additional variables	- Perceived ease of use, perceived usefulness, and perceived security and privacy risk were determinants of customer's intention to adopt IB services. - Compatibility found to influence perceived usefulness, perceived ease of use, and security and privacy risk. - Perceived ease of use significantly affected perceived usefulness. - While age, gender, and IT experience affected compatibility and perceived security and privacy risk, perceived usefulness and perceived ease of use were only affected by gender and age.
Kesharwani and Bisht (2012)	India	IB users (postgraduate students)	Integration (TAM/ TRA) + additional variables	- Perceived usefulness, perceived risk, and social influence all had significant influence on intention to adopt IB. - Website design and perceived behavioural control were found to influence perceived ease of use directly. - Trust, website design, and social influences were important determinants of perceived risk. - Perceived ease of use and social influences were important contributing factors of perceived usefulness.

Muhammad and Rana (2012)	Saudi Arabia	Adult students	Integration (TAM/ DIT) + additional variables	- Perceived usefulness, perceived ease of use, compatibility, innovativeness, and credibility were significant predictors of IB adoption. - Significant difference between IB users and non-users on all model variables.
Njuguna et al. (2012)	Kenya	Bank Customers	Integration (TAM/ DIT) + additional variables	- Perceived usefulness, perceived ease of use, self-efficacy, compatibility, relative advantage, and results demonstrability had a positive influence on IB adoption. - IB users were mainly males and younger than non-users. - Non-users' perceptions of IB were lower than users in all aspects except perception of risk.
Al-Ajam and Nor (2013a)	Yemen	Bank Customers	Extended DIT	- Compatibility, perceived relative advantage, perceived ease of use, trust, and trialability all had significant positive effects on the individuals' intention to adopt IB.
Fonchamnyo (2013)	Cameroon	Bank Customers	Extended TAM	- The overall adoption of e-banking was predicted by customer's attitude. - Perceived usefulness, perceived ease of use, age, marital status, education, perceived trust, accessibility, awareness, and security were all found to influence attitudes towards adoption. - Accessibility, reliability, trust, security and perceived ease of use influenced perceived usefulness of e-banking services.
Maditinos et al. (2013)	Greece	Internet users	Extended TAM	- Perceived usefulness, perceived enjoyment, performance risk, and security risk were directly associated with intention to adopt. - While the quality of Internet connection was associated with both perceived ease of use and perceived enjoyment, security risk was associated with perceived usefulness. - While perceived enjoyment influenced perceived ease of use and perceived usefulness, perceived ease of use had an effect on perceived usefulness.

Susanto et al. (2013)	Indonesia	Non-users of IB	None /Descriptive study	- Relative benefits, perceived security, perceived privacy, website usability, company reputation, and government support all had significant impacts on initial trust. - Relative benefits, perceived security, website usability, and company reputation, all had significant impacts on usage intention. - Initial trust has a partial mediating role between its antecedents and usage intention.
Varaprasad et al. (2013)	India	Bank Customers	Integration (TAM/ DIT) + additional variables	- Perceived usefulness, perceived ease of use, relative advantage, and conspicuousness had positive effects on behavioural intention to adopt IB.
Nasri and Zarai (2014)	Tunisia	Bank Customers	Extended TAM	- While perceived usefulness and perceived ease of use had significant influence on intention to use IB, perceived ease of use had also significant impact on perceived usefulness. - Awareness was found to be significant and negatively related to perceived usefulness. - Social norms were found to have a significant influence on perceived usefulness. - Security and privacy and computer self-efficacy were had significant influences on perceived ease of use of IB.
Yadav et al. (2015)	India	Professional students	Integration (TAM/ TRB) + perceived risk	- Perceived usefulness, attitude, subjective norms and perceived behavioural control significantly influenced the customers' intentions to adopt IB. - Perceived ease of use did not show any significant influence on consumer attitude toward IB. - Perceived risk did not influence intention to adopt IB.

Appendix 2B: Summary of IB Adoption Previous Studies in Jordan

Study	Sample	Analysis Technique(s)	Data collection Method(s)	Model(s)	Key findings
Al-Sukkar and Hasan (2005)	Bank customers	Correlations	Questionnaire	Extended TAM	- Perceived usefulness and perceived ease of use were determinants of attitudes, which in turn had an influence on behavioural intention to accept IB. - Quality of IB service was associated with perceived usefulness and perceived ease of use. - Cultural variables and trust showed no correlations with either perceived usefulness and perceived ease of use.
AbuShanab and Pearson (2007)	Systematic random sampling/ 877 customers from three banks	ANOVA/ Multiple regressions	Questionnaire	UTAUT	- Performance expectancy, effort expectancy, social influence, and facilitating conditions were factors that influenced behavioural intentions to accept IB. - While age and gender mediated the relationship between performance expectancy and behavioural intention and the relationship between effort expectancy and behavioural intention, the relationship between social influence and behavioural intention was moderated by gender and experience.
AL-Majali (2011)	Random/ 532 Bank customers From four public universities	CFA/ SEM	Questionnaire	Extended TRA	- Behavioural intention positively influenced IB adoption. - Attitude had positive influence on intention; perceived risk, awareness, and trust were predicting attitudes. - Subjective norms had positive influence on intention, family influence and mass media were antecedents of subjective norms.

AL-Majali and Mat (2011)	Random/ 532 customers From four public universities	CFA/ SEM	Questionnaire	Extended DIT	- Perceived usefulness, perceived ease of use, trialability, compatibility, trust, and awareness were all had positive influence on IB adoption behaviour. - The study showed that awareness was the most important factor that had a positive and significant effect on IB adoption.
Alnsour and Alhyari (2011)	353 Corporate customers	SEM	Questionnaire	Extended TAM	- Perceived ease of use had a positive effect perceived usefulness. - Trust had a significant positive influence on perceived ease of use. - Perceived security had a positive impact on perceived usefulness and trust.
Al-Qeisi and Al-Abdallah (2013)	Snowball/ 224 IB users from three Jordanian cities	CFA/ SEM	Questionnaire	Extended UTAUT	- Previous UTAUT constructs' interrelationships were supported. - The website quality showed a significant impact on usage behaviour indirectly through both effort expectancy and performance expectancy. - Experience directly influenced all the model's constructs except for performance expectancy, which was indirectly through effort expectancy.
Abu-Assi et al. (2014)	Random/ 350 IB users from ABC Bank	Mean/ ANOVA/ Multiple regression	Questionnaire	Integration (TAM/ DIT) + additional variables	- Perceived usefulness, perceived ease of use, compatibility, and security were had positive impact on IB adoption. - The majority of IB users were young males with a high education level and a high monthly income.
Rawashdeh et al. (2015)	Random/ 298 Chartered accountants	EFA/ CFA/ SEM	Questionnaire	Extended TAM	- Intention to adopt IB was directly influenced by attitudes, perceived usefulness, and perceived web privacy. - While perceived usefulness and perceived web privacy found to influence both attitudes and behavioural intention, perceived ease of use had direct influence on attitudes and indirect effect on intention.

Appendix 2C: Summary of the Research Variables and Hypotheses

Factor	Coding	Operational Definition	Hypothesis
Intention to Use	**IU**	The extent to which an individual has an intention to use and adopt IB.	Dependent variable
Perceived Usefulness	**PU**	The degree to which an individual believes that using IB would enhance his/her job performance.	H 1: PU → IU
Perceived Ease of Use	**PEOU**	The degree to which an individual believes that using IB would be free of effort.	H 2a: PEOU → IU H 2b: PEOU → PU
Trialability	**TRB**	The extent to which an individual have an opportunity to pre-test IB without any obligations.	H 3a: TRB → IU H 3b: TRB → PEOU
Compatibility	**COMP**	The degree to which the use of IB is considered by an individual as consistent with his/her values, socio-cultural beliefs, past and present experiences, and personal needs.	H 4a: COMP → IU H 4b: COMP → PU H 4c: COMP → PEOU
Observability-Visibility	**OBSV**	The extent to which potential adopter can view IB clearly around such as: newspapers, television, Internet, and other public media channels.	H 5: OBSV → IU
Observability-Result Demonstrability	**OBSR**	The communicability of positive outcomes and advantages of using IB services to other people in an individual social context.	H 6a: OBSR → IU H 6b: OBSR → PEOU

Innovativeness	**INV**	The degree of an individual willingness to adapt with new ideas and technologies (e.g. IB).	H 7a: INV → IU H 7b: INV → PU H 7c: INV → PEOU
Accessibility	**ACC**	Refers to the availability of personal computers and quality Internet connection to an individual in order to conduct IB (appropriate technical resources and proper technology infrastructure).	H 8a: ACC → IU H 8b: ACC → PEOU
Perceived Financial Cost	**PFC**	The extent to which an individual believes that using IB services will cost him/her more money than other banking options.	H 9a: PFC → IU H 9b: PFC → PEOU
Government Support	**GVS**	The extent to which a particular government is supporting IB implementation by various means (e.g. Internet infrastructures, legal aspects, and other incentives).	H 10: GVS → IU
Information about Internet Banking	**IIB**	The amount of information available for customers about the different aspects of IB services.	H 11a: IIB → IU H 11b: IIB → PU H 11c: IIB → PEOU

Appendix 3A: The Questionnaire (English version)

LIVERPOOL JOHN MOORES UNIVERSITY

Liverpool Business School

Dear bank customer,

I am currently undertaking research as part of a PhD at Liverpool John Moores University.

You are being invited to take part in this research study by completing the following questionnaire. Before you decide to participate, it is important that you understand why the research is being done and what it involves. Please take time to read the following information.

Title of research:

(An Integrated Model for Examining Factors that Influence Customers' Adoption of Internet Banking Services Provided by Commercial Banks in Jordan)

It is hoped that the findings of this research will help the banking industry in Jordan by providing recommendations in terms of improving the future marketing and information technology strategies, which will enhance the potential success of IB services adoption in the country.

Answering the questionnaire will take approximately 10-15 min. it is up to you to decide whether or not to take part. You are still free to withdraw at any time and without giving a reason. Your decision to withdraw will not affect your rights/any future treatment you will receive.

The participation is anonymous and no names will be used in the study itself or in any further publications. The gained data will be used strictly for academic purposes; therefore, I can confirm that there will be no risks for you due to your participation.

Any personal information collected as a part of the study will be transferred to the UK for further analysis and will be treated confidentially, stored securely on password-protected computers and in a locked cabinet. Only the researcher and his supervisory team will have direct access to it. All personal information will be retained for a period of 2-4 years after analysis when it will then be destroyed.

By taking part in this study, you are implicitly confirming that you have read the information above and you agree to participate.

If you have any questions regarding this study, please do not hesitate to contact me using the contact information below.

Majed Kamel Al-Azzam

Email: M.K.ALAZZAM@2013.ljmu.ac.uk

Mobile: 044 7417 515187 (UK)

Thank you in advance for your participation in this research

- **Part One: IB usage**

- **Please, tick (✓) the box that best describes your status.**

1- I am currently using Internet Banking services. ☐ Yes ☐ No

- **Part Two: Demographic Data**

- **Please, tick (✓) the box that best describes your status.**

2- **Your gender**: ☐ Female ☐ Male

3- **Your age group** (years): ☐ 15 -20 ☐ 21-30 ☐ 31- 40
☐ 41-50 ☐ 51-60 ☐ Over 60

4- **Your level of education**:

☐ High school ☐ Diploma ☐ Bachelor
☐ Master ☐ Doctorate
☐ Other, please specify……

5- **Your current occupation**:

☐ Student ☐ Public sector employee
☐ Private sector employee ☐ Self-employed
☐ Other, please specify ……

6- **Your monthly income** (JDs):

☐ 300 or Less ☐ 301- 500
☐ 501-800 ☐ 801-1,100
☐ More than 1,100

- **Part Three: Attitudes towards IB**

7 - Using the rating scale provided, please tick (✓) in the box that indicates your level of agreement/ disagreement with the following statements (even if you are not a current IB user):

	Statement	Level of agreement/ disagreement				
	Perceived Usefulness (PU)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	Using Internet banking services enhances the productivity of my banking activities.					
2	Using Internet banking services makes it easier to do my banking activities.					
3	Using Internet banking services enables me to carry out banking activities more quickly.					
4	Using Internet banking improves my performance of banking activities.					
5	Using Internet banking services enhances my effectiveness of banking activities.					
6	Overall, I find Internet banking services useful for my banking activities.					
	Perceived Ease of Use (PEOU)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	Learning to operate Internet banking services is easy for me.					
2	I find it easy to get Internet banking to do what I want to do.					
3	My interaction with Internet banking is clear and understandable.					
4	I find Internet banking to be flexible to interact with.					
5	Becoming skilful at using Internet banking is easy for me.					
6	Overall, I find Internet banking user-friendly.					
	Trialability (TRB)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	Before deciding on whether or not to use Internet banking services, I want to be able to try it out properly.					
2	Before deciding on whether or not to use Internet banking services, I want to be able to use it on a trial basis to see what it can do.					
3	I want Internet banking services to be available to me to adequately test and run its services before deciding on whether or not to use it.					
4	It should be permitted to use Internet banking services on a trial basis long enough to see what it can do.					

	Statement	Level of agreement/ disagreement				
	Compatibility (COMP)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	Internet banking is compatible with my lifestyle.					
2	Using Internet banking fits well with the way I like to manage my finances.					
3	Using Internet banking fits into my working patterns.					
	Perceived Financial Cost (PFC)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	I think costs of needed equipment required to perform Internet banking services (computers, mobiles, and tablets) are reasonable / affordable.					
2	I think the cost of Internet connection required to perform Internet banking services are reasonable /affordable.					
3	I think conducting banking transactions using Internet banking will cost me less than other banking methods.					
	Observability-Visibility (OBSV)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	I have seen many others using Internet banking.					
2	It is easy for me to observe others using Internet banking.					
	Observability-Result demonstrability (OBSR)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	I could easily explain to others the results of using Internet banking.					
2	I would have no difficulty explaining why using Internet banking may or may not be beneficial.					
3	The results of using Internet banking are clear to me.					
	Innovativeness (INV)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	If I heard about a new information technology, I would look for ways to experiment with it.					
2	Among my peers, I am usually the first to explore new information technologies.					
3	I like to experiment with new information technologies.					

	Statement	Level of agreement/ disagreement				
	Government Support (GVS)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	The Jordanian government encourages and promotes the usage of Internet and e-commerce.					
2	The Internet infrastructure and facilities such as (phone lines, broadcasting lines via cable, satellite, and fibre-optics) are sufficient for Internet banking in Jordan.					
3	The Jordanian government is driving the development of Internet banking.					
4	The Jordanian government has adequate regulations and laws for Internet banking.					
	Information about IB (IIB)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	I have received enough information about Internet banking services.					
2	I have received enough information about the benefits of Internet banking.					
3	I have received enough information about using Internet banking.					
	Accessibility (ACC)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	I have access to a computer with an Internet connection to use Internet banking.					
2	The resources needed to use IB are available to me (e.g. computers and Internet connection).					
3	I could easily get access to the resources that are needed to use Internet banking (computer and Internet).					
4	I have sufficient resources to use Internet banking.					
	Intention to Use (IU)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	I intend to use Internet banking in the next few months.					
2	I predict that I would use Internet banking in the next few months.					
3	I am planning to use Internet banking in the next few months.					
4	I will strongly recommend Internet banking for other bank customers.					

Thank you for your cooperation

Appendix 3B: The Questionnaire (Arabic version)

جامعة ليفربول جون موريس – المملكة المتحدة

عزيزي عميل (زبون) البنك المحترم

أقوم حاليا بإجراء بحث كجزء من متطلبات الحصول على درجة الدكتوراه في اداراه الاعمال في جامعة ليفربول جون موريس في المملكة المتحدة وأنت مدعو للمشاركة في هذا البحث من خلال الاجابة على اسئلة الاستبيان التالي.

قبل أن تقرر المشاركة من المهم أن تفهم ما هي الغاية من اجراء هذا البحث وما هي الاهداف المرجو تحقيقها بعد انتهاءه لذلك ارجو منك قراءة المعلومات التالية بعناية.

عنوان البحث:

نموذج متكامل لدراسة العوامل التي تؤثر على تبني الزبائن للخدمات المصرفية عبر الانترنت التي تقدمها البنوك التجارية في الأردن.

المقصود بالخدمات المصرفية عبر الانترنت هو ذلك النوع من الخدمات المصرفية التي تُمكّن زبون البنك من إجراء المعاملات والانشطة المصرفية المختلفة بطريقة إلكترونية وبدون الزيارة الفعلية لفرع البنك الذي يتعامل معه، ويشمل هذا النوع من الخدمات السماح للزبون بالوصول إلى حساباته وإدارتها وإجراء الدفعات النقدية، وسَداد قيمة الفواتير وإجراء كافة الخدمات الاستعلامية، وإجراء التحويلات المالية بين حساباته داخل البنك ومع جهات خارجية.

ومن المؤمل أن نتائج هذا البحث ستساعد القطاع المصرفي في الاردن من خلال تقديم التوصيات التي من شأنها أن تلعب دوراً هاماً في تحسين تطبيق استراتيجيات التسويق وتكنولوجيا المعلومات التي تنفذها البنوك العاملة في القطاع مما ينعكس ايجابا على نوعية الخدمات المصرفية المقدمة للزبائن مستقبلاً.

يرجى العلم بأن الاجابة على اسئلة الاستبيان سوف تستغرق من (10-15) دقيقة تقريباً وأن القرار بالمشاركة في هذه الدراسة يعود لك كما ان خيارك بالانسحاب في أي وقت من دون بيان الاسباب يبقى قائماً طول فترة المشاركة.

وتجدر الاشارة كذلك الى أن كافة المعلومات التي سيتم جمعها سوف تعامل بسرية تامة ولن يتم استخدامها الا لأغراض البحث العلمي.

في النهاية أود ان اعبر عن خالص امتناني وشكري لمساعدتك القيمة.

- **من فضلك إذا كان لديك أي استفسارات ارجو ان لا تردد بالاتصال بي بأحد الطرق التالية:**

بريد الكتروني: M.K.AlAzzam@2013.ljmu.ac.uk

هاتف (جوال): 7417515187 44 + **المملكة المتحدة**

البـــاحث

ماجـــد كامل العـــزام

- الجـــزء الاول: استخدام الخدمات المصرفية عبر الانترنت

- الرجاء وضع إشارة (✓) في المربع الذي يعبر عن حالتك.

1- انا حاليا استخدام الخدمات المصرفية عبر الانترنت ☐ نعم ☐ لا

- الجزء الثاني: البيانات الديموغرافية

- الرجاء وضع إشارة (✓) في المربع الذي يعبر عن حالتك.

2- الجنـــس: ☐ ذكر ☐ انثى

3- العمر (بالسنوات): ☐ 20 - 15 ☐ 30 - 21 ☐ 40 - 31
☐ 50 - 41 ☐ 60 - 51 ☐ أكبر من 60

4- المؤهل العلمي: ☐ ثانوية عامة او اقل ☐ دبلوم ☐ بكالوريوس
☐ ماجســتير ☐ دكتوراه ☐ غير ذلك، الرجاء الذكر .....

5- الوظيفة الحالية: ☐ طالـــب ☐ موظف (القطاع العام) ☐ موظف (القطاع الخاص)
☐ اعمال حره (عمل خاص) ☐ غير ذلك، الرجاء الذكر .....

6- الدخل الشهري (دينار اردني): ☐ اقـــل من 300 ☐ 500 - 300 ☐ 800 – 501
☐ 1,100 – 801 ☐ أكثر من 1,100

- **الجـزء الثالث: الاتجاهات نحو الخدمات المصرفية عبر الانترنت.**

7- باستخدام المقياس المرفق، الرجاء وضع إشارة (✓) في المربع الذي يعبر عن مستوى موافقتك أو عدم موافقتك على العبارات التالية (حتى لو لم تكن مستخدم حالي للخدمات المصرفية عبر الانترنت)

	العبـــــــاره	درجـــــة الموافقـــــة				
	الفائـــــدة المدركة	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	يعزز استخدام الخدمات المصرفية عبر الانترنت من قدرتي على إتمام معاملاتي المصرفية بشكل أفضل.					
2	يمكنني استخدام الخدمات المصرفية عبر الانترنت من إنجاز معاملاتي المصرفية بشكل أسهل.					
3	يمكنني استخدام الخدمات المصرفية عبر الانترنت من إنجاز معاملاتي المصرفية بشكل أسرع.					
4	يحسن استخدام الخدمات المصرفية عبر الانترنت من ادائي في التعامل مع احتياجاتي المصرفية المختلفة.					
5	يزيد استخدام الخدمات المصرفية عبر الانترنت من فاعليتي في التعامل مع احتياجاتي المصرفية المختلفة.					
6	أجد أن استخدام الخدمات المصرفية عبر الانترنت مفيد في انجاز معاملاتي المصرفية المختلفة بشكل عام.					
	سهولة الاستخـــدام المدركة	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	يعتبر تعلم كيفية استخدام الخدمات المصرفية عبر الانترنت عملية سهلة بالنسبة لي.					
2	من السهل تحقيق ما اريد من معاملات مصرفية مختلفة من خلال استخدام الخدمات المصرفية عبر الانترنت.					
3	استخدامي للخدمـــــات المصرفيـــة عبر الانترنـــت واضـــح ومفهـــوم.					
4	يمنحني استخدام الخدمات المصرفية عبر الانترنت مرونة أكبر في انجاز معاملاتي المصرفية المختلفة.					
5	استخدم الخدمات المصرفيـــــة عبر الانترنـــت بمهـــارة سهل بالنسبة لـــي.					
6	الخدمات المصرفيـــة عبر الانترنـــت سهلة الاستخدام بشكل عام بالنسبة لـــي.					

	الاستخدام على سبيل التجربة	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	قبل أن أقرر استخدام الخدمات المصرفيــة عبر الانترنت أفضل أن أقوم بتجربتها اولاً.					
2	أفضل أن اتعرف أكثر على المزايا والفوائد المتعلقة بالخدمات المصرفية عبر الانترنت قبل أن أقرر استخدامها وذلك من خلال استخدامها بشكل تجريبي.					
3	من المهم ان تكون الخدمات المصرفية عبر الانترنت متوفرة لي حتى اتمكن من اختبارها بالشكل المناسب.					
4	من الضروري ان يكون مسموح لي أن استخدم الخدمات المصرفية عبر الانترنت على سبيل التجربة لوقت كافٍ حتى اتمكن من التعرف على مزايا استخدامها.					
	التـــــــوافق مع الحياة اليومية	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	يتوافق استخدام الخدمات المصرفيـــة عبر الانترنت مع أسلوب حياتـــي اليوميـــة.					
2	يناسب استخدام الخدمات المصرفية عبر الانترنت الطريقة التي اتبعها في ادارة شؤوني المالية المختلفة					
3	يعتبر استخدام الخدمات المصرفيـــة عبر الانترنت ملائماً لأسلـــوب عملي اليومـــي.					
	التكلفة المالية المدركة	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	أعتقد أن تكلفة الاجهزة اللازمة لاستخدام الخدمات المصرفيـة عبر الانترنـــت (اجهزة كمبيوتر، هاتف نقال، واجهزة لوحية) هي تكلفة معقولة.					
2	أعتقد أن تكلفة الاتصال بشبكة الانترنت من اجل استخدام الخدمات المصرفية عبر الانترنت هي تكلفة معقولة.					
3	أعتقد ان انجاز معاملاتي المصرفية المختلفة باستخدام الخدمات المصرفية عبر الانترنت أقل كلفة بالنسبة لي مقارنة بالطرق المصرفية الاخرى					

	وضوح تطبيق الخدمة للعيان	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	لقد لاحظت العديد من الآخرين يستخدمون الخدمات المصرفيـــة عبر الإنترنـــت.					
2	من السهل بالنسبة لي ملاحظة الآخرين يقومون باستخدام الخدمات المصرفية عبر الإنترنت.					
	عرض نتائج الاستخدام على الاخرين	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	يمكن أن أفسر بسهولة للآخرين نتائج استخدامي للخدمات المصرفية عبر الإنترنت.					
2	لا اواجه صعوبة في ان ابين للأخرين مدى استفادتي من الخدمات المصرفية عبر الإنترنـــت.					
3	نتائج استخدام الخدمات المصرفيـة عبر الإنترنـت واضحـــة بالنسبـــة لـــي.					
	الميل للإبداع والابتكـــــار	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	إذا سمعت عن تكنولوجيا معلومات جديدة، أحاول أن أبحث عن سُبل لتجربتها.					
2	أنا عادة أول من يبادر لاستكشاف تكنولوجيا المعلومات الجديدة بين أقراني.					
3	أرغب بتجـــريب تكنولوجيـــا المعلومات الجديـدة بقـــدر الامكـــان.					
	دعـــم الحكومـــــة	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	تشجع الحكومـــة في الاردن استخدام الإنترنت والتجـــارة الإلكتـــرونية.					
2	تعتبر البنية التحتية للإنترنت في الاردن (خطوط الهاتف وخطوط البث عبر الكابلات والأقمار الصناعية وخطوط الالياف البصرية) كافية لاستخدام الخدمات المصرفية عبر الإنترنت.					
3	إن الحكومة في الأردن هي التي ترعى عملية تطبيق الخدمات المصرفية عبر الإنترنت في المملكة.					
4	توفر الحكومة في الاردن بيئة قانونية (لوائح وقوانين) كافية لتنظيم استخدام الخدمات المصرفية عبر الإنترنت في المملكة.					

	المعلومات حول الخدمات المصرفية عبر الإنترنت	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	لقد تلقيت معلومات كافيـــة حول الخدمـات المصرفيـــة عبر الإنترنـــــت.					
2	لقد تلقيت معلومات كافية حول مزايا وفوائد الخدمات المصرفيـة عبر الإنترنـت.					
3	لقد تلقيت معلومات كافية حول كيفية استخدام الخدمات المصرفيـة عبر الإنترنت.					
	إمكـــــانيـة الوصـــــول	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	متاح لي جهاز حاسوب متصل بشبكة الإنترنت وذلك لاستخدام الخدمات المصرفية عبر الإنترنت.					
2	تعتبـر الموارد اللازمـة لاستخدام الخدمات المصرفية عبر الإنترنت (مثل أجهزة الحاسوب والاتصال بالإنترنت) متوفرة لدي بشكل كافٍ.					
3	يمكنني بسهولة الحصول على الموارد المطلوبة لاستخدام الخدمات المصرفية عبر الإنترنت (أجهزة الحاسوب والاتصال بالإنترنت).					
4	لدي ما يكفي من الموارد اللازمة لاستخدام الخدمات المصرفية عبر الإنترنت (أجهزة الحاسوب والاتصال بالإنترنت).					
	نيـــــة الاستخـــــــدام	موافق تماما	موافق	محايد	غير موافق	غير موافق مطلقا
1	أنوي استخدام الخدمات المصرفيـــة عبر الإنترنـــت في الأشهر القليلة المقبلة.					
2	أتوقع أن اقوم باستخدام الخدمات المصرفية عبر الإنترنت في الأشهر القليلة المقبلة.					
3	أخطط لاستخدام الخدمات المصرفيـة عبر الإنترنت في الأشهر القليلة المقبلـــة.					
4	سوف أوصي بشده لزبائن البنك الاخرين باستخدام الخدمات المصرفية عبر الإنترنت.					

شـــــكرا لمساعـــدتك

Appendix 3C: The Interview Information Sheet

LIVERPOOL JOHN MOORES UNIVERSITY

Liverpool Business School

Dear Participant

I am currently undertaking research as part of a PhD at Liverpool John Moores University-UK. You are being invited to take part in my research study by participating in an interview.

Before you decide to participate, it is important that you understand why the research is being done and what it involves. Please take your needed time to read the following information.

Title of research:

(An Integrated Model for Examining Factors that Influence Customers' Adoption of Internet Banking Services Provided by Commercial Banks in Jordan)

It is hoped that findings of this research will help the banking industry in Jordan by providing recommendations in terms of improving the future marketing and information technology strategies, which will enhance the potential success of IB services adoption in the country.

The interview will take approximately (30-50) minutes. It is up to you to decide whether to take part or not. You are still free to withdraw at any time and without giving a reason. A decision to withdraw will not affect your rights/any future treatment you will receive.

The participation is anonymous and no names will be used in the study itself or in any further publications. The gained data will be used strictly for academic purposes. Therefore, I can confirm that there will be no risks or benefits to you due to your participation.

Any personal information collected as a part of the study will be transferred to UK for further analysis and will be treated confidentially, stored securely on password-protected computers and in a locked cabinet, just the researcher and his supervisory team will have direct access to it. All personal information will be retained for a period of 2-4 years after which it will be destroyed.

If you accept to take a part in this study, you will be asked to confirm that by signing a consent form, which means that you read the information above and you, are happy to participate.

Please, if you have any questions regarding this study please do not hesitate to contact me using the contact details below.

Majed Kamel Al-Azzam

Email: M.K.ALAZZAM@2013.ljmu.ac.uk

Mobile: 044 7417 515187 (UK)

Thank you for your cooperation

Appendix 3D: The Questionnaire Sampling Process

The first Stage: Clustering all Jordanian population (89 different districts) into 12 governorates using cluster-sampling technique.

Governorate	District	Overall Population	Over 18 population
Amman (1)	Amman Qasabah (1)	719,350	402,836
	Marka (2)	629,910	352,750
	Quaismeh (3)	334,940	187,566
	Al-Jami'ah (4)	363,720	203,683
	Wadi Essier (5)	226,270	126,711
	Sahab (6)	74,260	41,585
	Jizah (7)	46,030	25,777
	Um Al-Rasas (8)	8,720	4,883
	Muaqqar (9)	24,370	13,647
	Rajm al-Shami (10)	14,710	8,238
	Na'oor (11)	52,150	29,204
	Um Elbasatien (12)	13,580	7,605
	Hosba'n (13)	20,490	11,474
Al- Balqa (2)	Salt (1)	97,820	54,779
	Al-Ardha (2)	12,360	6,922
	Allan (3)	17,680	9,901
	Ira &Yargha (4)	10,930	6,121
	Shoonah Janoobiyah (5)	48,960	27,417
	Dair Alla (6)	58,710	32,878
	Ain Albasha (7)	162,880	91,213
	Fuhais&Mahes (8)	28,160	15,769
Al-Zarqa (3)	Zarqa Qasabah (1)	504,580	282,565
	Bierain (2)	15,140	8,478
	Dhlail (3)	41,490	23,234
	Azraq (4)	11,480	6,429
	Russeifa (5)	341,290	191,122
	Hashemiyah (6)	58,920	32,995
Madaba (4)	Madaba Qasabah (1)	102,960	57,658
	Jrainah (2)	8,530	4,777
	Maeen (3)	9,240	5,174
	Faisaliah (4)	6,660	3,730
	Dieban (5)	15,390	8,618
	Areedh (6)	5,120	2,867
	Mlaih (7)	15,400	8,624
Irbid (5)	Irbid Qasabah (1)	470,260	263,346
	Ramtha (2)	136,660	76,530
	Koorah (3)	114,000	63,840
	Bani Kenanah (4)	95,660	53,570
	Aghwar Shamaliyah (5)	106,680	59,741
	Bani Obeid (6)	117,150	65,604
	Mazar Shamali (7)	55,300	30,968
	Taybeh (8)	36,480	20,429
	Wastiyyah (9)	30,110	16,862

Governorate	District	Overall Population	Over 18 Population
Mafraq (6)	Mafraq Qasabah (1)	71,600	40,096
	Bal'ama (2)	26,130	14,633
	Irhab (3)	20,810	11,654
	Manshiyah (4)	9,290	5,202
	Salhiya (5)	21,400	11,984
	Sabha (6)	12,440	6,966
	Um Al-Jemal (7)	18,320	10,259
	Dair Al Kahf (8)	9,350	5,236
	Om-Elqotain (9)	11,020	6,171
	Badiyah Gharbiyah (10)	29,510	16,526
	Serhan (11)	20,550	11,508
	Hosha (12)	17,820	9,979
	Khaldiyah (13)	26,340	14,750
	Rwaished (14)	12,320	6,899
Ajlun (7)	Ajlun Qasabah (1)	70,850	39,676
	Sakhrah (2)	26,080	14,605
	Orjan (3)	18,980	10,629
	Kufranjah (4)	34,290	19,202
Karak (8)	Karak Qasabah (1)	80,900	45,304
	Mazar (2)	59,250	33,180
	Mo'aab (3)	12,090	6,770
	Qasr (4)	18,760	10,506
	Mowjeb (5)	7,260	4,066
	Safi (6)	24,580	13,765
	Ghawr Almazra'a (7)	15,890	8,898
	Ayy Qasabah (8)	12,110	6,782
	Faqo'e (9)	15,190	8,506
	Qatraneh (10)	8,670	4,855
Tafiela (9)	Tafiela Qasabah (1)	57,110	31,982
	Bsaira (2)	23,460	13,138
	Hasa (3)	10,830	6,065
Ma'an (10)	Ma'an Qasabah (1)	35,110	19,662
	Iel (2)	9,620	5,387
	Jafr (3)	8,920	4,995
	Mraighah (4)	8,670	4,855
	Athroh (5)	4,850	2,716
	Petra (6)	31,390	17,579
	Shobak (7)	14,600	8,176
	Huseiniya (8)	10,940	6,126
Aqaba (11)	Aqaba Qasabah (1)	112,600	63,056
	Wadi Araba (2)	5,820	3,259
	Quairah (3)	18,470	10,343
	Diesah (4)	5,410	3,030
Jarash (12)	Jarash Qasabah (1)	168,760	94,506
	Mestabah (2)	15,020	8,411
	Borma (3)	12,120	6,787
	Total	**6,530,000**	**3,656,800**

The second stage:

Determining the number of districts to be selected from each governorate in order to arrive at 20 different districts, based on the ratio of each governorate to the all (12) Jordanian governorates.

No.	Governorate	Districts	% Total	Required No. of districts
1	Amman	13	0.146	3
2	Al- Balqa	8	0.090	2
3	Al-Zarqa	6	0.067	1
4	Madaba	7	0.079	1
5	Irbid	9	0.101	2
6	Mafraq	14	0.157	3
7	Ajlun	4	0.045	1
8	Karak	10	0.112	2
9	Tafiela	3	0.034	1
10	Ma'an	8	0.090	2
11	Aqaba	4	0.045	1
12	Jarash	3	0.034	1
	Total	89	1	20

The third stage:

Selecting the required number of districts from each governorate by using random number tables.

No.	Districts	Over 18 population	Governorate
1	Marka	352,750	
2	Al-Jami'ah	203,683	Amman
3	Na'oor	29,204	
4	Ira &Yargha	6,121	Al- Balqa
5	Ain Albasha	91,213	
6	Hashemiyah	32,995	Al-Zarqa
7	Dieban	8,618	Madaba
8	Bani Kenanah	53,570	Irbid
9	Bani Obeid	65,604	
10	Bal'ama	14,633	
11	Salhiya	11,984	Mafraq
12	Hosha	9,979	
13	Kufranjah	19,202	Ajlun
14	Karak Qasabah	45,304	Karak
15	Qasr	10,506	
16	Bsaira	13,138	Tafiela
17	Iel	5,387	Ma'an
18	Mraighah	4,855	
19	Aqaba Qasabah	63,056	Aqaba
20	Mestabah	8,411	Jarash
	Total	1,050,213	

The fourth stage:

600 potential subjects were drawn from the chosen 20 districts using proportionate stratified sampling.

Governorate	Districts	Over 18 population	% / total	Subjects
Amman	Marka	352,750	0.336	202
	Al-Jami'ah	203,683	0.194	116
	Na'oor	29,204	0.028	17
Al- Balqa	Ira &Yargha	6,121	0.006	4
	Ain Albasha	91,213	0.087	52
Al-Zarqa	Russeifa	32,995	0.032	19
Madaba	Dieban	8,618	0.008	5
Irbid	Bani Kenanah	53,570	0.051	31
	Bani Obeid	65,604	0.062	37
Mafraq	Bal'ama	14,633	0.014	8
	Salhiya	11,984	0.011	7
	Hosha	9,979	0.009	5
Ajlun	Kufranjah	19,202	0.019	11
Karak	Karak Qasabah	45,304	0.043	26
	Qasr	10,506	0.01	6
Tafiela	Bsaira	13,138	0.013	8
Ma'an	Iel	5,387	0.005	3
	Mraighah	4,855	0.004	2
Aqaba	Aqaba Qasabah	63,056	0.06	36
Jarash	Mestabah	8,411	0.008	5
	Total	1,050,213	1	600

The fifth stage:

- Approaching target number of subjects randomly at different public places in the chosen twenty districts.
- Eligibility criteria:
    - Has a bank account at any commercial bank in Jordan.
    - Aged 18 years old or above.
    - Knows how to use computers.
    - Knows how to use Internet.

Appendix 3E: Sources of the Measurement Scales for the Questionnaire

Question	Variable	Scale type	Source(s)
Part One: IB use Q1	Q1- Using the services or not.	2-point multiple choice	The researcher
Part Two: Demographic Data (Q2-Q6)	Q2- Gender	2-point multiple choice	The researcher
	Q3- Age group	6-point multiple choice	The researcher
	Q4- Level of education	6-point multiple choice	The researcher
	Q5- Current occupation	5-point multiple choice	The researcher
	Q6- Income level	5-point multiple choice	The researcher
Part Three: Attitudes towards IB. Q7	**PU**	(6 items) 5-point Likert scale	Davis (1989)
	PEOU	(6 items) 5-point Likert scale	Davis (1989)
	TRB	(4 items) 5-point Likert scale	Nor and Pearson (2007)
	COMP	(3 items) 5-point Likert scale	Moore and Benbasat (1991); Tan and Teo (2000)
	PFC	(3 items) 5-point Likert scale	Poon (2008)
	OBSV	(2 items) 5-point Likert scale	Moore and Benbasat (1991)
	OBSR	(3 items) 5-point Likert scale	Moore and Benbasat (1991)
	INV	(3 items) 5-point Likert scale	Agarwal and Prasad (1998)
	GVS	(4 items) 5-point Likert scale	Tan and Teo (2000) ; Jaruwachirathanakul and Fink (2005)
	IIB	(3 items) 5-point Likert scale	Pikkarainen et al. (2004)
	ACC	(4 items) 5-point Likert scale	Nor et al. (2011)
	IU	(4 items) 5-point Likert scale	AbuShanab et al. (2010); Aderonke et al.

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSV**: Observability-visibility, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Appendix 3F: Data Analysis Techniques Used

Technique & (Software Package) used	Purpose(s) of the Analysis
Descriptive Statistics (SPSS 22)	-To create a profile data of the surveyed respondents' characteristics. -To perform comparison between IB users and non-users. -To summarise the results in a form of easy-to-understand tables and charts.
-Kurtosis and Skewness - Scree plot test (SPSS 22)	To check the normality of the quantitative data in the current research (the extent to which data distribution is close to normal distribution).
Cronbach's Alpha Test (SPSS 22)	To assess construct internal consistency of the current study questionnaire (Inter-item consistency reliability).
Independent t-test (SPSS 22)	To compare the attitudinal mean differences between IB users and non-users.
Chi-Square test (SPSS 22)	To examine the impact of demographic variables on the decision of users and non-users to adopt IB services in Jordan.
Exploratory Factor Analysis (EFA) (SPSS 22)	-To identify the underlying structure of the research model constructs and the observable variables for these constructs. -To summarise and reduce the number of study variables to a smaller and more manageable set of variables. - To explain the variance in the observed variables in terms of underlying latent factors.
Kaiser-Meyer-Olkin (KMO) Bartlett's test of Sphericity (SPSS 22)	To assess the suitability of the data set for EFA, sample size, and the pattern of relationships among the variables.
Confirmatory Factor Analysis (CFA) (AMOS 22)	-To assess the goodness-of-fit for the measurement model in the present study. -To validate relationships between the observed and latent variables. -To confirm the validity and reliability of the scales and measures derived from EFA.
Structural Equation Modelling (SEM) (AMOS 22)	-To assess the goodness-of-fit for the structural model of the present study. - To test the hypothesised relationships among the different constructs in the proposed model.
Thematic Analysis (NVivo 11)	- To organise, classify, sort, and arrange qualitative data (primary and secondary). - To clarify meanings, organise and explain data, to search for relationships, and to gain an understanding of the various dimensions explored in semi-structured interviews.

Appendix 4A: Descriptive Statistics for the Questionnaire Measurement Items

Item	Mean	Std. Deviation
PU1: Using IB services enhances the productivity of my banking activities.	**3.99**	**1.057**
PU2: Using IB services makes it easier to do my banking activities.	**3.94**	**1.061**
PU3: Using IB services enables me to carry out banking activities more quickly.	**3.95**	**1.081**
PU4: Using the IB information system improves my performance of banking activities.	**3.95**	**1.075**
PU5: Using IB services enhances my effectiveness of banking activities.	**3.93**	**1.062**
PU6: Overall, I find IB services useful for my banking activities.	**3.94**	**1.039**
PEOU1: Learning to operate IB services is easy for me.	**3.82**	**1.096**
PEOU2: I find it easy to get IB to do what I want to do.	**3.70**	**1.140**
PEOU3: My interaction with IB is clear and understandable.	**3.73**	**1.192**
PEOU4: I find IB to be flexible to interact with.	**3.71**	**1.135**
PEOU5: Becoming skilful at using IB is easy for me.	**3.71**	**1.188**
PEOU6: Overall, I find IB user-friendly.	**3.67**	**1.186**
TRB1: Before deciding on whether or not to use IB services, I want to be able to try it out properly.	**3.79**	**1.053**
TRB2: Before deciding on whether or not to use IB services, I want to be able to use it on a trial basis to see what it can do.	**3.80**	**1.006**
TRB3: I want IB services to be available to me to adequately test and run its services before deciding on whether or not to use it.	**3.77**	**.999**
TRB4: It should be permitted to use IB services on a trial basis long enough to see what it can do.	**3.82**	**.941**
COMP1: IB is compatible with my lifestyle.	**3.59**	**1.13**
COMP2: Using IB fits well with the way I like to manage my finances.	**3.48**	**1.186**
COMP3: Using IB fits into my working patterns.	**3.58**	**1.302**
PFC1: I think costs of needed equipment required to perform IB services (computers, mobiles, and tablets) are reasonable/affordable.	**3.81**	**1.126**
PFC2: I think the cost of Internet connection required to perform IB services are reasonable/affordable.	**3.86**	**1.060**
PFC3: I think conducting banking transactions using IB will cost me less than other banking methods.	**3.83**	**1.032**

OBSR1: I could easily explain to others the results of using IB.	**3.72**	**1.111**
OBSR2: I would have no difficulty explaining why using IB may or may not be beneficial.	**3.03**	**1.127**
OBSR3: The results of using IB are clear to me.	**3.32**	**1.202**
OBSV1: I have seen many others using IB.	**2.49**	**1.286**
OBSV2: It is easy for me to observe others using IB.	**2.82**	**1.176**
INV1: If I heard about a new information technology, I would look for ways to experiment with it.	**3.46**	**1.116**
INV2: Among my peers, I am usually the first to explore new information technologies.	**3.09**	**1.121**
INV3: I like to experiment with new information technologies.	**3.29**	**1.223**
GVS1: The Jordanian government encourages and promotes the usage of Internet and e-commerce.	**3.71**	**1.084**
GVS2: The Internet infrastructure and facilities such as (Phone lines, broadcasting lines via cable, satellite, and fibre-optics) are sufficient for IB in Jordan.	**3.62**	**1.020**
GVS3: The Jordanian government is driving the development of IB.	**3.52**	**1.71**
GVS4: The Jordanian government has adequate regulations and laws for IB.	**3.59**	**1.103**
IIB1: I have received enough information about IB services.	**2.73**	**1.226**
IIB2: I have received enough information about the benefits of IB.	**2.65**	**1.180**
IIB3: I have received enough information about using IB.	**2.68**	**1.201**
ACC1: I have access to a computer with an Internet connection to use IB.	**4.11**	**1.015**
ACC2: The resources needed to use IB are available to me (e.g. computers and Internet connection).	**3.96**	**.926**
ACC3: I could easily get access to the resources that are needed to use IB (computer and Internet).	**4.01**	**1.048**
ACC4: I have sufficient resources to use IB.	**3.97**	**1.067**
IU1: I intend to use IB in the next few months.	**3.73**	**1.049**
IU2: I predict that I would use IB in the next few months.	**3.67**	**1.082**
IU3: I am planning to use IB in the next few months.	**3.65**	**1.133**
IU4: I will strongly recommend IB for other bank customers.	**3.72**	**1.068**

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Appendix 5A: Communality Statistics for the Observable Variables (EFA)

Variable	Initial	Extraction	Variable	Initial	Extraction
PU1	1	0.904	OBSR2	1	0.859
PU2	1	0.916	OBSR3	1	0.819
PU3	1	0.886	OBSV1	1	0.575
PU4	1	0.901	OBSV2	1	0.552
PU5	1	0.893	INV1	1	0.834
PU6	1	0.891	INV2	1	0.82
PEOU1	1	0.834	INV3	1	0.887
PEOU2	1	0.826	GVS1	1	0.731
PEOU3	1	0.836	GVS2	1	0.796
PEOU4	1	0.858	GVS3	1	0.758
PEOU5	1	0.867	GVS4	1	0.721
PEOU6	1	0.84	IIB1	1	0.956
TRB1	1	0.851	IIB2	1	0.886
TRB2	1	0.913	IIB3	1	0.928
TRB3	1	0.766	ACC1	1	0.813
TRB4	1	0.897	ACC2	1	0.855
COMP1	1	0.919	ACC3	1	0.877
COMP2	1	0.917	ACC4	1	0.878
COMP3	1	0.924	IU1	1	0.935
PFC1	1	0.94	IU2	1	0.892
PFC2	1	0.793	IU3	1	0.86
PFC3	1	0.948	IU4	1	0.917
OBSR1	1	0.791			

*Extraction Method: PCA

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Appendix 5B: The Pattern Matrix for Rotated Eleven-factor Solution

	FACTOR										
	1	2	3	4	5	6	7	8	9	10	11
PU1	.971	.006	-.004	-.026	-.029	-.002	.029	-.016	-.027	-.021	.008
PU2	.959	-.025	-.001	.005	.004	.003	.003	.012	-.024	.005	.013
PU3	.917	.027	-.011	-.005	-.007	-.008	-.046	.000	.021	.039	-.009
PU4	.949	.003	.003	-.012	.009	.020	-.009	-.002	.051	.007	-.036
PU5	.907	.046	.036	.014	.004	-.018	-.003	.005	-.034	.007	.001
PU6	.947	-.030	-.014	.021	.020	-.006	.030	-.005	.012	-.011	.020
PEOU1	-.023	.876	.009	-.002	.007	-.005	.023	.003	.006	.068	-.011
PEOU2	-.051	.916	-.005	.052	-.024	-.061	.051	-.010	-.014	.061	-.076
PEOU3	.030	.912	-.026	-.020	.036	.034	-.012	-.008	.053	-.034	.003
PEOU4	.016	.911	-.007	.024	.006	-.002	-.034	-.029	-.012	.040	.019
PEOU5	.056	.919	.033	-.006	-.006	.000	-.026	.047	-.026	-.084	.030
PEOU6	.010	.915	.002	-.042	-.016	.023	.017	.022	-.004	-.052	.039
TRB1	.008	.002	.932	-.013	.017	.014	.008	-.020	.042	-.012	-.034
TRB2	-.024	.009	.945	-.001	.012	-.016	-.011	.000	.005	.028	.006
TRB3	.016	.050	.863	.000	-.028	.050	-.026	.014	-.036	-.016	-.008
TRB4	.008	-.052	.949	.014	-.012	-.042	.023	.003	-.007	.005	.031
COMP1	-.024	.031	.009	.002	-.009	.024	-.044	.959	.005	.006	.011
COMP2	.012	.013	-.022	-.002	-.008	-.013	.016	.956	-.004	.035	-.033
COMP3	.005	-.008	.010	.010	.020	-.009	.029	.948	.001	-.027	.023
PFC1	-.021	.026	-.011	-.008	-.002	-.013	.970	-.018	.011	.013	-.001
PFC2	.058	-.035	.022	.037	.014	.050	.887	.024	-.023	-.031	-.037
PFC3	-.028	.034	-.016	-.020	-.006	-.020	.957	-.008	.014	.025	.028
OBSR1	.051	.011	-.023	-.012	-.032	.026	.009	.028	.890	-.043	-.003
OBSR2	-.031	.011	.002	-.030	-.017	-.013	.021	.000	.933	.004	.005
OBSR3	-.019	-.020	.026	.046	.043	-.011	-.030	-.026	.901	.038	.000
INV1	.050	-.019	-.010	.024	-.014	-.020	.075	.011	.017	.018	.857
INV2	-.002	.043	-.011	.042	.016	.030	-.050	-.070	-.014	.008	.917
INV3	-.027	-.018	.013	-.047	-.002	-.010	-.021	.058	.004	-.008	.971
GVS1	-.051	.053	.007	-.044	.846	.022	.014	-.042	-.049	.023	.020
GVS2	.021	.006	.052	.028	.882	-.003	.002	-.036	-.010	.013	.000
GVS3	-.014	-.054	.053	-.008	.867	-.034	.054	.061	.030	-.042	.018
GVS4	.043	-.004	-.121	.018	.850	.013	-.063	.021	.023	.004	-.036
IIB1	-.004	.002	.010	.007	-.003	.967	.007	-.014	.014	.027	-.020
IIB2	-.003	-.044	-.007	.014	-.010	.949	-.001	.018	-.031	.012	.008
IIB3	-.003	.032	.001	-.016	.010	.957	.011	-.002	.019	-.026	.015
ACC1	-.004	-.020	.039	.887	.006	.017	-.005	.047	-.014	-.029	.009
ACC2	.002	.042	-.022	.940	-.025	-.009	-.015	-.097	.021	.004	.026
ACC3	-.004	.003	-.001	.937	.014	.017	.035	.011	-.005	-.042	-.008
ACC4	.002	-.022	-.015	.920	.000	-.020	-.006	.053	-.001	.054	-.021
IU1	.023	-.016	-.012	-.025	-.019	.000	.033	.041	-.005	.940	.025
IU2	.047	-.001	.021	-.008	.017	.011	-.007	-.019	-.013	.933	-.029
IU3	.009	.073	.047	.030	.020	.021	-.058	-.001	.024	.829	.019
IU4	.017	-.019	-.018	-.004	-.014	-.012	.025	-.003	.000	.967	.006

- Extraction method is PCA
- Rotation method is Promax with Kaiser Normalization

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Appendix 5C: The Structure Matrix for Rotated Eleven-factor Solution

	FACTOR										
	1	2	3	4	5	6	7	8	9	10	11
PU1	.949	.471	.275	.232	.067	.113	.147	.252	.142	.516	.406
PU2	.957	.471	.293	.266	.103	.132	.143	.280	.157	.546	.429
PU3	.940	.489	.292	.252	.096	.130	.117	.272	.186	.556	.419
PU4	.947	.483	.296	.249	.109	.158	.146	.276	.214	.554	.410
PU5	.942	.516	.333	.280	.106	.115	.154	.293	.155	.557	.432
PU6	.943	.470	.281	.279	.116	.132	.170	.280	.189	.539	.438
PEOU1	.461	.912	.372	.316	.129	.161	.408	.465	.316	.556	.452
PEOU2	.417	.902	.340	.331	.084	.093	.415	.445	.269	.501	.385
PEOU3	.475	.912	.324	.289	.151	.182	.377	.442	.337	.512	.449
PEOU4	.497	.924	.362	.329	.128	.154	.356	.435	.288	.549	.468
PEOU5	.499	.928	.368	.313	.107	.130	.365	.476	.269	.497	.460
PEOU6	.459	.914	.339	.281	.100	.158	.396	.460	.297	.494	.455
TRB1	.277	.345	.921	.244	.104	.152	.173	.249	.212	.469	.295
TRB2	.288	.371	.955	.272	.106	.135	.174	.278	.200	.504	.335
TRB3	.291	.362	.872	.256	.060	.165	.150	.262	.156	.455	.300
TRB4	.291	.337	.946	.281	.077	.106	.185	.273	.182	.480	.338
COMP1	.278	.489	.293	.383	.068	.185	.416	.963	.341	.431	.405
COMP2	.292	.485	.267	.373	.067	.151	.451	.963	.328	.430	.378
COMP3	.282	.477	.284	.390	.092	.154	.463	.964	.337	.414	.410
PFC1	.135	.412	.170	.280	.053	.162	.970	.431	.351	.311	.301
PFC2	.168	.365	.183	.303	.060	.198	.887	.422	.303	.294	.270
PFC3	.148	.432	.180	.284	.055	.164	.973	.449	.366	.333	.331
OBSR1	.192	.302	.161	.201	.035	.305	.333	.329	.896	.352	.358
OBSR2	.141	.295	.180	.182	.054	.285	.345	.316	.930	.362	.360
OBSR3	.169	.286	.217	.237	.114	.294	.300	.298	.902	.394	.373
INV1	.448	.471	.324	.404	.124	.214	.362	.414	.394	.541	.914
INV2	.415	.446	.309	.383	.152	.237	.239	.318	.343	.511	.914
INV3	.394	.441	.325	.345	.138	.209	.285	.408	.377	.511	.947
GVS1	.061	.118	.083	-.022	.851	.074	.044	.029	.029	.163	.119
GVS2	.134	.143	.148	.058	.889	.079	.058	.068	.072	.218	.160
GVS3	.074	.108	.123	.037	.865	.048	.110	.127	.104	.169	.152
GVS4	.086	.064	-.031	-.003	.839	.063	-.017	.037	.051	.120	.077
IIB1	.141	.167	.163	.201	.077	.977	.183	.163	.330	.364	.229
IIB2	.115	.115	.127	.190	.061	.940	.153	.152	.274	.317	.210
IIB3	.138	.183	.149	.187	.088	.962	.192	.173	.334	.342	.245
ACC1	.240	.298	.283	.900	.026	.189	.273	.381	.198	.321	.367
ACC2	.257	.313	.243	.920	-.003	.174	.251	.294	.210	.323	.377
ACC3	.237	.310	.254	.935	.029	.192	.308	.374	.208	.312	.363
ACC4	.271	.322	.271	.935	.026	.178	.291	.407	.220	.368	.378
IU1	.567	.554	.489	.344	.173	.340	.348	.455	.401	.966	.557
IU2	.566	.528	.498	.324	.201	.333	.283	.384	.359	.943	.504
IU3	.551	.571	.518	.368	.201	.341	.279	.415	.395	.923	.545
IU4	.555	.533	.478	.342	.175	.328	.325	.414	.388	.957	.534

- Extraction method is PCA
- Rotation method is Promax with Kaiser Normalization

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSV**: Observability-visibility, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Appendix 5D: The EFA Summary for the Study's Constructs

PU Observable Variables Items: 6, Average Item means : 3.949		Loading	Correlation	Cronbach's Alpha	Eigenvalue	% of Explained variance
PU1	Using IB services enhances the productivity of my banking activities.	0.971	0.949			
PU2	Using IB services makes it easier to do my banking activities.	0.959	0.957			
PU3	Using IB services enables me to carry out banking activities more quickly.	0.917	0.940			
PU4	Using the IB information system improves my performance of banking activities.	0.949	0.947	0.977	15.2	35.2
PU5	Using IB services enhances my effectiveness of banking activities.	0.907	0.942			
PU6	Overall, I find IB services useful for my banking activities.	0.947	0.943			

PEOU Observable Variables Items: 6, Average Item means : 3.724						
PEOU1	Learning to operate IB services is easy for me.	0.876	0.912			
PEOU2	I find it easy to get IB to do what I want to do.	0.916	0.902			
PEOU3	My interaction with IB is clear and understandable.	0.912	0.912			
PEOU4	I find IB to be flexible to interact with.	0.911	0.924	0.961	3.98	9.25
PEOU5	Becoming skilful at using IB is easy for me.	0.919	0.928			
PEOU6	Overall, I find IB user-friendly.	0.915	0.914			

TRB Observable Variables Items: 4, Av. Item means : 3.795						
TRB1	Before deciding on whether or not to use IB services, I want to be able to properly try it	0.932	0.921			
TRB2	Before deciding on whether or not to use IB services, I want to be able to use it on a trial basis to see what it can do.	0.945	0.955			
TRB3	I want IB services to be available to me to adequately test run its services before deciding on whether or not to use it.	0.863	0.872	0.942	3.11	7.23
TRB4	It should be permitted to use IB services on a trial basis long enough to see what it can do.	0.949	0.946			

COMP Observable Variables Items: 3 , Average Item means : 3.548						
COMP1	IB is compatible with my lifestyle.	0.959	0.963	0.960	2.86	6.64
COMP2	Using IB fits well with the way I like to manage my finances.	0.956	0.963			
COMP3	Using IB fits into my working patterns.	0.948	0.964			

PFC Observable Variables Items: 3, Average Item means : 3.826						
PFC1	I think costs of needed equipment required to perform IB services (computers, mobiles, and tablets) are reasonable / affordable.	0.970	0.970	0.940	2.66	6.2
PFC2	I think costs of Internet connection required to perform IB services are reasonable / affordable.	0.887	0.887			
PFC3	I think conducting banking transactions using IB will cost me less than other banking	0.957	0.973			

OBSR Observable Variables Items: 3 , Average Item means : 2.780						
OBSR1	I could easily explain to others the results of using IB.	0.890	0.896	.894	2.44	5.67
OBSR2	I would have no difficulty explaining why using IB may or may not be beneficial.	0.933	0.930			
OBSR3	The results of using IB are clear to me.	0.901	0.902			

INV Observable Variables Items: 3, Average Item means : 3.279						
INV1	If I heard about a new information technology, I would look for ways to experiment with it.	0.857	0.914	0.916	1.77	4.12
INV2	Among my peers, I am usually the first to explore new information technologies.	0.917	0.914			
INV3	I like to experiment with new information technologies.	0.971	0.947			

GVS Observable Variables Items: 4, Average Item means : 3.610						
GVS1	The Jordanian government encourages and promotes the usage of Internet and e-commerce.	0.846	0.851	0.882	1.6	3.7
GVS2	The Internet infrastructure and facilities such as (Phone lines, broadcasting lines via cable, satellite and fibre-optics) are sufficient for IB in Jordan.	0.882	0.889			
GVS3	The Jordanian government is driving the development of IB.	0.867	0.865			
GVS4	The Jordanian government has adequate regulations and laws for IB.	0.850	0.839			

IIB Observable Variables Items: 3, Average Item means : 2.690						
IIB1	I have received enough information about IB services.	0.967	0.977	0.958	1.41	3.29
IIB2	I have received enough information about the benefits of IB.	0.949	0.940			
IIB3	I have received enough information about using IB.	0.957	0.962			

ACC Observable Variables Items: 4, Average Item means : 4.011						
ACC1	I have access to a computer with an Internet connection to use IB.	0.887	0.900	0.941	1.25	2.9
ACC2	The resources needed to use IB are available to me (e.g. computers and Internet connection).	0.940	0.920			
ACC3	I could easily get access to the resources that are needed to use IB (computer and Internet).	0.937	0.935			
ACC4	I have sufficient resources to use IB.	0.920	0.935			

IU Observable Variables Items: 4, Average Item means : 3.694						
IU1	I intend to use IB in the next few months.	0.940	0.966	0.962	1.04	2.42
IU2	I predict that I would use IB in the next few months.	0.933	0.943			
IU3	I am planning to use IB in the next few months.	0.829	0.923			
IU4	I will strongly recommend IB for other bank customers.	0.967	0.957			

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Appendix 5E: Model-fit Summary for CFA (first-run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	141	1232.519	805	0.000	1.531
Saturated model	946	0.000	0		
Independence model	43	23718.473	903	0.000	26.266

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	0.035	0.892	0.874	0.759
Saturated model	0.000	1.000		
Independence model	0.443	0.149	0.109	0.143

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	0.948	0.942	0.981	0.979	0.981
Saturated model	1.000		1.000		1.000
Independence model	.000	0.000	0.000	0.000	0.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	0.891	0.845	0.875
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

NCP

Model	NCP	LO 90	HI 90
Default model	427.519	336.687	526.295
Saturated model	0.000	0.000	0.000
Independence model	22815.473	22316.863	23320.444

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.668	.925	.729	1.139
Saturated model	0.000	0.000	0.000	0.000
Independence model	51.339	49.384	48.305	50.477

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.034	0.030	0.038	1.000
Independence model	0.234	0.231	0.236	0.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1514.519	1544.203	2097.938	2238.938
Saturated model	1892.000	2091.158	5806.290	6752.290
Independence model	23804.473	23813.526	23982.396	24025.396

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3.278	3.082	3.492	3.342
Saturated model	4.095	4.095	4.095	4.526
Independence model	51.525	50.446	52.618	51.544

HOELTER

Model	HOELTER 0.05	HOELTER 0.01
Default model	327	338
Independence model	19	20

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

Appendix 5F: Standardised Regression Weights (CFA first-run)

Observed Variable	Latent Variable	SRW Estimate	Observed Variable	Latent Variable	SRW Estimate
PU1	PU	0.938	OBSR1	OBSR	0.836
PU2	PU	0.951	OBSR2	OBSR	0.913
PU3	PU	0.927	OBSR3	OBSR	0.839
PU4	PU	0.937	INV1	INV	0.884
PU5	PU	0.93	INV2	INV	0.854
PU6	PU	0.93	INV3	INV	0.924
PEOU1	PEOU	0.894	GVS1	GVS	0.802
PEOU2	PEOU	0.874	GVS2	GVS	0.866
PEOU3	PEOU	0.89	GVS3	GVS	0.804
PEOU4	PEOU	0.911	GVS4	GVS	0.766
PEOU5	PEOU	0.918	IIB1	IIB	0.994
PEOU6	PEOU	0.898	IIB2	IIB	0.883
TRB1	TRB	0.889	IIB3	IIB	0.943
TRB2	TRB	0.956	ACC1	ACC	0.856
TRB3	TRB	0.812	ACC2	ACC	0.883
TRB4	TRB	0.938	ACC3	ACC	0.92
COMP1	COMP	0.942	ACC4	ACC	0.924
COMP2	COMP	0.947	IU1	IU	0.979
COMP3	COMP	0.948	IU2	IU	0.895
PFC1	PFC	0.981	IU3	IU	0.87
PFC2	PFC	0.771	IU4	IU	0.964
PFC3	PFC	0.998			

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Appendix 5G: Squared Multiple Correlations (CFA first-run)

Observed Variable	Latent Variable	SMC Estimate	Observed Variable	Latent Variable	SMC Estimate
PU1	PU	0.879	OBSR1	OBSR	0.698
PU2	PU	0.904	OBSR2	OBSR	0.833
PU3	PU	0.859	OBSR3	OBSR	0.705
PU4	PU	0.879	INV1	INV	0.781
PU5	PU	0.864	INV2	INV	0.73
PU6	PU	0.866	INV3	INV	0.854
PEOU1	PEOU	0.799	GVS1	GVS	0.644
PEOU2	PEOU	0.764	GVS2	GVS	0.75
PEOU3	PEOU	0.793	GVS3	GVS	0.646
PEOU4	PEOU	0.83	GVS4	GVS	0.587
PEOU5	PEOU	0.842	IIB1	IIB	0.988
PEOU6	PEOU	0.806	IIB2	IIB	0.78
TRB1	TRB	0.79	IIB3	IIB	0.89
TRB2	TRB	0.914	ACC1	ACC	0.733
TRB3	TRB	0.659	ACC2	ACC	0.779
TRB4	TRB	0.789	ACC3	ACC	0.847
COMP1	COMP	0.887	ACC4	ACC	0.853
COMP2	COMP	0.898	IU1	IU	0.958
COMP3	COMP	0.899	IU2	IU	0.802
PFC1	PFC	0.962	IU3	IU	0.757
PFC2	PFC	0.594	IU4	IU	0.928
PFC3	PFC	0.997			

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Appendix 5H: The Standardised Residual Covariance Matrix (CFA first-run)

	IU4	IU3	IU2	IU1	ACC4	ACC3	ACC2	ACC1	IIB3	IIB2	IIB1	OBSR3	OBSR2	OBSR1	GVS4	GVS3	GVS2	GVS1	INV3	INV2	INV1	PFC3	PFC2	PFC1	TRB4	TRB3	TRB2	TRB1	COMP3	COMP2	COMP1	PEOU6	PEOU5	PEOU4	PEOU3	PEOU2	PEOU1	PU6	PU5	PU4	PU3	PU2	PU1
IU4	0																																										
IU3	-0.3	0.0																																									
IU2	-0.2	1.4	0.0																																								
IU1	0.1	-0.2	-0.1	0.0																																							
ACC4	0.4	1.7	0.4	0.3	0.0																																						
ACC3	-0.7	0.5	-0.3	-0.7	0.0	0.0																																				
ACC2	-0.1	0.9	0.0	-0.2	0.1	-0.1	0.0																																			
ACC1	0.1	1.0	0.1	0.2	-0.2	0.1	0.1	0.0																																		
IIB3	-0.2	0.6	0.4	-0.1	0.0	-0.1	-0.3	0.2	0.0																																		
IIB2	-0.3	0.5	0.2	-0.2	-0.1	0.3	0.2	0.5	0.0	0.0																																	
IIB1	-0.2	0.7	0.3	0.0	-0.2	0.1	-0.1	0.3	0.0	0.0	0.0																																
OBSR3	0.5	1.8	0.5	0.6	1.0	0.6	1.1	0.3	0.4	0.2	0.3	0.0																															
OBSR2	-0.6	0.1	-0.6	-0.4	-0.5	-0.6	-0.3	-0.6	0.0	-0.8	-0.3	0.0	0.0																														
OBSR1	0.1	0.5	0.0	0.2	0.2	0.2	-0.2	0.7	0.0	0.0	0.3	-0.2	0.0	0.0																													
GVS4	-1.2	-0.1	-0.1	-1.3	-0.4	-0.7	-1.1	-0.1	0.2	-0.2	0.0	0.6	-0.3	-1.0	0.0																													
GVS3	-0.1	1.1	-0.1	-0.1	0.6	0.2	-0.1	0.3	-0.1	-0.5	-0.2	1.8	0.5	0.0	0.5	0.0																												
GVS2	0.6	1.1	1.5	0.4	0.5	0.9	0.3	0.7	0.5	0.0	0.0	1.2	-0.3	-0.4	0.3	-0.5	0.0																											
GVS1	-0.1	0.1	0.4	-0.3	-0.8	-0.3	-1.3	-0.9	0.4	0.0	0.0	-0.2	-0.8	-0.3	-0.9	0.4	0.2	0.0																									
INV3	-0.6	0.2	-0.5	-0.4	-0.9	-1.0	-0.3	-0.4	0.2	-0.2	-0.4	0.3	-0.7	0.3	-0.7	0.0	0.4	-0.2	0.0																								
INV2	-0.2	1.6	0.2	0.1	0.4	0.1	1.0	0.6	1.1	0.5	0.6	0.5	-0.5	-0.4	-0.6	1.0	0.8	-0.2	0.2	0.0																							
INV1	0.3	1.3	0.4	0.6	1.0	0.6	0.5	1.0	0.5	0.2	-0.1	0.7	0.2	0.8	-1.1	0.3	0.1	-0.4	0.0	-0.4	0.0																						
PFC3	0.0	-0.3	-0.6	0.2	0.1	0.2	-0.6	0.2	0.4	-0.2	0.0	-0.4	0.1	0.3	-1.0	1.0	0.0	-0.2	-0.4	0.4	0.8	-0.1	0.0																				
PFC2	0.4	0.7	0.7	1.0	1.4	2.1	1.3	1.2	1.6	1.1	1.5	0.3	0.3	0.8	-1.0	1.4	0.6	0.0	-1.3	-0.4	-0.3	0.5	0.0																				
PFC1	-0.3	-0.6	-0.9	-0.1	0.1	0.2	-0.6	0.3	0.5	-0.2	0.0	-0.4	-0.1	0.1	-1.2	1.1	-0.1	-0.1	-0.1	0.1	0.8	0.4	0.1	0.0																			
TRB4	-0.4	0.9	0.4	-0.4	0.1	0.0	-0.1	0.9	-0.6	-0.9	-0.5	0.5	-0.5	-0.4	-2.8	0.2	0.8	-0.3	-0.3	-0.1	0.4	0.1	0.5	-0.1	0.0																		
TRB3	0.1	2.0	1.5	0.2	0.8	0.0	0.1	1.0	0.9	0.5	0.9	0.2	-0.3	-0.1	-2.3	0.1	0.3	-0.3	-0.3	-0.1	0.4	0.1	0.5	-0.2	-0.3	0.0																	
TRB2	-0.2	1.4	0.7	-0.2	-0.1	-0.2	-0.5	0.7	-0.1	0.4	0.0	0.7	-0.2	-0.2	-1.9	0.6	1.4	-0.3	-0.1	0.1	-0.1	-0.1	0.7	-0.2	0.0	0.2	0.0																
TRB1	-0.1	1.3	0.6	0.0	-0.2	-0.7	-0.2	0.2	0.3	0.3	0.6	1.6	0.2	-0.3	-1.7	1.0	1.0	-0.2	-0.6	0.0	-0.1	-0.4	1.1	-0.2	0.2	-0.1	-0.1	0.0															
COMP3	-0.7	0.2	-0.4	0.0	0.4	0.1	-1.1	0.8	0.1	-0.1	-0.2	0.0	-0.2	0.5	-0.4	1.4	0.4	-0.4	-0.3	0.4	-0.9	0.1	1.7	0.1	0.0	0.4	0.1	-0.1	0.0														
COMP2	-0.4	0.6	-0.3	0.3	0.5	-0.3	-1.4	0.2	0.2	-0.2	-0.3	-0.1	-0.2	0.1	-0.6	0.9	-0.1	-1.0	-0.4	-0.9	0.1	0.1	1.5	0.0	-0.2	0.1	-0.2	-0.5	0.0	0.0													
COMP1	-0.1	0.6	-0.3	0.4	0.6	0.0	-1.0	0.5	0.7	0.6	0.4	0.1	-0.3	0.9	-0.9	1.1	-0.2	-0.6	0.3	-0.8	0.8	-0.5	1.1	-0.7	0.2	0.5	0.7	0.0	-0.1	0.0	0.0												
PEOU6	-0.7	0.9	0.1	-0.5	-0.5	-0.6	-0.4	-0.3	0.7	-0.5	0.2	-0.2	-0.2	0.8	-1.3	0.0	0.3	-0.5	-0.3	0.3	0.6	0.3	0.8	0.0	-0.8	0.6	0.0	-0.2	0.0	0.2	0.0												
PEOU5	-0.7	0.9	-0.3	-0.6	0.0	-0.2	0.1	0.1	0.7	-0.1	0.2	-1.2	0.0	-0.2	-1.6	-0.1	0.4	-0.6	-1.3	-0.4	-0.1	0.5	0.6	0.4	-0.2	0.9	0.2	0.1	-0.1	0.5	0.4	0.0											
PEOU4	0.1	1.8	0.6	0.3	0.3	0.1	0.2	0.5	0.5	0.1	0.6	0.3	-0.5	0.3	-0.6	0.0	0.6	0.2	-0.1	0.6	0.8	0.5	1.3	0.2	-0.1	1.2	0.7	0.2	0.7	0.5	0.5	0.2	0.1										
PEOU3	-0.3	1.5	0.0	0.0	-0.3	-0.4	0.1	-0.6	1.2	0.1	0.6	0.9	0.7	0.9	0.1	0.6	0.8	0.6	-0.4	0.8	0.8	0.5	1.5	0.3	-0.1	0.5	0.4	0.0	-0.3	0.1	0.2	0.3	-0.2	0.8	0.1	0.5						
PEOU2	-0.5	0.9	0.2	-0.2	0.5	0.4	0.6	0.5	-0.5	-1.6	-0.8	-0.3	-0.2	-0.2	-1.3	-0.5	-0.1	-0.6	-1.3	-0.4	-0.1	0.4	1.3	0.2	0.0	1.3	0.5	-0.4	-0.1	1.1	0.2	0.5	-0.2	0.1	0.2	-0.8	-0.6	0.1	-0.2	-0.4		
PEOU1	0.4	1.7	1.0	0.5	0.4	-0.1	0.2	0.2	0.7	-0.1	0.2	0.7	0.1	0.8	-0.4	-0.1	0.7	0.4	-0.1	0.1	0.8	0.4	0.2	0.2	0.0	0.6	-0.1	0.1	0.0	0.4	0.1	0.1	-0.1	0.1	0.6	0.0	-0.2	-0.4	0.1	-0.2	0.0	
PU6	-0.2	0.8	0.7	-0.3	0.6	0.0	0.7	0.3	0.2	-0.4	0.2	0.8	-0.3	1.0	0.2	0.1	1.1	-0.6	-0.2	0.8	0.8	0.5	1.5	0.3	-0.1	0.9	0.7	-0.2	0.0	0.1	-0.3	0.1	-0.2	0.3	-0.2	-0.8	-0.2	0.0				
PU5	0.0	1.1	1.0	0.1	0.6	0.0	0.5	0.6	-0.2	-0.3	0.7	0.8	0.0	-0.8	-0.1	0.9	0.9	-0.4	-0.3	0.4	1.1	0.1	1.5	-0.1	0.9	1.2	1.0	-0.2	0.9	1.1	1.1	0.3	0.8	0.1	0.5	-0.8	-0.4	0.1	-0.2	0.1	0.1	
PU4	0.0	0.8	1.0	0.0	0.1	-0.5	-0.1	-0.1	0.7	0.3	0.6	0.8	0.3	1.6	0.0	-0.4	-0.4	-0.9	-0.5	0.2	0.6	0.2	0.7	-0.2	0.0	1.0	-0.2	0.0	-0.1	0.0	0.2	0.3	0.3	-0.8	-0.6	0.1	-0.3	0.6	-0.1	0.0		
PU3	0.1	1.0	0.9	0.3	0.2	-0.6	0.3	-0.2	0.1	-0.1	0.0	0.6	0.0	0.8	-0.4	0.6	0.6	-0.3	-0.7	0.5	0.8	-0.6	0.7	-0.8	-0.2	0.9	-0.1	0.0	-0.1	0.5	0.5	0.4	0.4	-0.6	0.1	-0.4	0.1	-0.2	0.1	-0.2	0.0	
PU2	-0.3	0.5	0.6	-0.2	0.4	-0.5	0.1	0.2	0.1	-0.1	-0.1	0.1	-0.8	0.3	-0.5	0.6	0.6	-0.5	-0.6	0.5	0.5	-0.1	1.0	-0.3	0.0	0.7	-0.4	-0.1	0.0	0.2	0.2	0.2	-0.2	-0.8	-0.2	0.1	-0.4	0.1	-0.2	0.1	0.0	0.0
PU1	-0.8	0.3	0.3	-0.7	-0.2	-0.8	-0.2	-0.8	-0.3	-0.5	-0.4	-0.2	-1.3	0.2	-0.6	-1.0	0.0	-1.1	-1.0	0.0	0.5	0.0	0.9	-0.1	-0.5	0.5	-0.5	-0.4	-0.5	0.2	0.2	0.1	-0.2	-0.1	-1.2	-0.4	0.0	-0.1	0.1	-0.1	0.1	0.0

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to Use.

Appendix 5I: Model-fit Summary for CFA (second-run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	142	880.921	719	0.000	1.225
Saturated model	861	.000	0		
Independence model	41	22515.545	820	0.000	27.458

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	0.032	0.918	0.902	0.767
Saturated model	0.000	1.000		
Independence model	0.444	0.155	0.112	0.147

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	0.961	0.955	0.993	0.991	0.993
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	0.877	0.843	0.870
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

NCP

Model	NCP	LO 90	HI 90
Default model	161.921	90.872	241.158
Saturated model	0.000	0.000	0.000
Independence model	21695.545	21209.618	22187.829

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.907	0.350	0.197	0.522
Saturated model	0.000	0.000	0.000	0.000
Independence model	48.735	46.960	45.908	48.026

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.022	0.017	0.027	1.000
Independence model	0.239	0.237	0.242	0.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1164.921	1193.321	1752.478	1894.478
Saturated model	1722.000	1894.200	5284.583	6145.583
Independence model	22597.545	22605.745	22767.192	22808.192

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.521	2.368	2.693	2.583
Saturated model	3.727	3.727	3.727	4.100
Independence model	48.912	47.861	49.978	48.930

HOELTER

Model	HOELTER 0.05	HOELTER 0.01
Default model	411	425
Independence model	19	19

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

Appendix 5J: Inter-construct Correlations, Critical ratios, and P-values (CFA second-run)

Path	Estimate	C.R.	p	Path	Estimate	C.R.	p
COMP ⟷ IU	0.467	8.801	***	INV ⟷ GVS	0.176	3.314	***
COMP ⟷ TRB	0.302	5.907	***	TRB ⟷ GVS	0.142	2.755	0.006
PEOU ⟷ IU	0.578	10.203	***	GVS ⟷ ACC	0.031	0.611	0.541
PEOU ⟷ TRB	0.395	7.399	***	COMP ⟷ GVS	0.091	1.787	0.074
PEOU ⟷ IIB	0.17	3.51	***	GVS ⟷ OBSR	0.079	1.499	0.134
PEOU ⟷ ACC	0.357	6.731	***	PFC ⟷ GVS	0.075	1.488	0.137
PU ⟷ COMP	0.305	6.042	***	GVS ⟷ IIB	0.082	1.623	0.105
PU ⟷ TRB	0.316	6.193	***	INV ⟷ IU	0.589	10.20	***
PU ⟷ ACC	0.283	5.556	***	PFC ⟷ ACC	0.3	5.926	***
PU ⟷ PEOU	0.532	9.498	***	ACC ⟷ IU	0.363	6.958	***
PU ⟷ PFC	0.155	3.249	0.001	PFC ⟷ IU	0.354	7.074	***
PEOU ⟷ PFC	0.439	8.301	***	PEOU ⟷ INV	0.518	9.019	***
COMP ⟷ PFC	0.463	8.771	***	TRB ⟷ ACC	0.295	5.702	***
TRB ⟷ PFC	0.184	3.794	***	PEOU ⟷ COMP	0.525	9.37	***
PFC ⟷ IIB	0.172	3.61	***	COMP ⟷ INV	0.447	8.147	***
TRB ⟷ INV	0.368	6.855	***	COMP ⟷ ACC	0.422	7.798	***
PFC ⟷ INV	0.346	6.668	***	PEOU ⟷ GVS	0.155	2.988	0.003
INV ⟷ ACC	0.426	7.658	***	COMP ⟷ IIB	0.172	3.556	***
IIB ⟷ ACC	0.208	4.217	***	TRB ⟷ IIB	0.157	3.244	0.001
INV ⟷ IIB	0.241	4.795	***	PU ⟷ IU	0.588	10.55	***
COMP ⟷ OBSR	0.371	6.856	***	IIB ⟷ IU	0.361	7.195	***
PFC ⟷ OBSR	0.387	7.217	***	OBSR ⟷ IU	0.422	7.731	***
TRB ⟷ OBSR	0.217	4.212	***	PU ⟷ IIB	0.145	3.024	0.002
OBSR ⟷ IIB	0.345	6.554	***	PU ⟷ OBSR	0.187	3.7	***
OBSR ⟷ ACC	0.239	4.563	***	TRB ⟷ IU	0.513	9.339	***
PEOU ⟷ OBSR	0.342	6.339	***	PU ⟷ GVS	0.114	2.23	0.026
INV ⟷ OBSR	0.435	7.615	***	PU ⟷ INV	0.469	8.498	***
GVS ⟷ IU	0.212	4.089	***				

PU: Perceived Usefulness, **PEOU**: Perceived Ease of Use, **TRB**: Trialability, **COMP**: Compatibility, **PFC**: Perceived Financial Cost, **OBSR**: Observability- result demonstrability, **INV**: Innovativeness, **GVS**: Government Support, **IIB**: Information about Internet banking, **ACC**: Accessibility, **IU**: Intention to

Appendix 5K: Model-fit Summary for SEM (first-run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	136	897.461	725	0.000	1.238
Saturated model	861	0.000	0		
Independence model	41	22515.545	820	0.000	27.458

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	0.038	0.916	0.901	0.772
Saturated model	0.000	1.000		
Independence model	0.444	0.155	0.112	0.147

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	0.960	0.955	0.992	0.991	0.992
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	0.884	0.849	0.877
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

NCP

Model	NCP	LO 90	HI 90
Default model	172.461	100.437	252.660
Saturated model	0.000	0.000	0.000
Independence model	21695.545	21209.618	22187.829

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.943	0.373	0.217	0.547
Saturated model	0.000	0.000	0.000	0.000
Independence model	48.735	46.960	45.908	48.026

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.023	0.017	.027	1.000
Independence model	0.239	0.237	0.242	0.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1169.461	1196.661	1732.192	1868.192
Saturated model	1722.000	1894.200	5284.583	6145.583
Independence model	22597.545	22605.745	22767.192	22808.192

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.531	2.375	2.705	2.590
Saturated model	3.727	3.727	3.727	4.100
Independence model	48.912	47.861	49.978	48.930

HOELTER

Model	HOELTER 0.05	HOELTER 0.01
Default model	407	421
Independence model	19	19

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

Appendix 5L: Model-fit Summary for SEM (second-run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	114	735.413	589	0.000	1.249
Saturated model	703	0.000	0		
Independence model	37	20504.229	666	0.000	30.787

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	0.040	0.923	0.909	0.774
Saturated model	0.000	1.000		
Independence model	0.465	0.159	0.112	0.151

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	0.964	0.959	0.993	0.992	0.993
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	0.884	0.853	0.878
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

NCP

Model	NCP	LO 90	HI 90
Default model	146.413	81.392	219.597
Saturated model	0.000	0.000	0.000
Independence model	19838.229	19374.187	20308.619

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.592	0.317	0.176	0.475
Saturated model	0.000	0.000	0.000	0.000
Independence model	44.381	42.940	41.935	43.958

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.023	0.017	0.028	1.000
Independence model	0.254	0.251	0.257	0.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	963.413	983.847	1435.113	1549.113
Saturated model	1406.000	1532.009	4314.822	5017.822
Independence model	20578.229	20584.861	20731.325	20768.325

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.085	1.945	2.244	2.130
Saturated model	3.043	3.043	3.043	3.316
Independence model	44.542	43.537	45.560	44.556

HOELTER

Model	HOELTER 0.05	HOELTER 0.01
Default model	407	423

RMSEA: Root Mean Square Error of Approximation, **SRMR**: Standardised Root Mean Square Residual, **RMR**: Root Mean Square Residual, **GFI**: Goodness-of-Fit Index, **AGFI**: Adjusted Goodness-of-Fit Index, **NFI**: Normed Fit Index, **NNFI:** Non-Normed Fit Index, **TLI**: Tucker-Lewis Index, **CFI:** Comparative Fit Index.

Appendix 5M: Harman's Single factor results

Variable	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**15.153**	**35.239**	**35.239**	**15.153**	**35.239**	**35.239**
2	3.978	9.251	44.490			
3	3.109	7.230	51.720			
4	2.855	6.639	58.359			
5	2.664	6.195	64.555			
6	2.438	5.671	70.225			
7	1.772	4.120	74.346			
8	1.589	3.695	78.040			
9	1.414	3.289	81.329			
10	1.245	2.895	84.224			
11	1.041	2.421	86.645			
12	0.453	1.055	87.700			
13	0.384	0.893	88.592			
14	0.351	0.817	89.409			
15	0.318	0.740	90.149			
16	0.297	0.691	90.840			
17	0.289	0.672	91.512			
18	0.264	0.614	92.126			
19	0.235	0.547	92.673			
20	0.233	0.541	93.215			
21	0.225	0.524	93.739			
22	0.216	0.502	94.241			
23	0.191	0.443	94.685			
24	0.187	0.436	95.120			
25	0.180	0.419	95.539			
26	0.175	0.407	95.946			
27	0.171	0.399	96.345			
28	0.162	0.377	96.722			
29	0.150	0.350	97.072			
30	0.140	0.325	97.397			
31	0.129	0.299	97.696			
32	0.127	0.295	97.991			
33	0.115	0.266	98.258			
34	0.112	0.259	98.517			
35	0.102	0.237	98.754			
36	0.092	0.214	98.968			
37	0.090	0.209	99.178			
38	0.084	0.195	99.373			
39	0.080	0.187	99.560			
40	0.076	0.177	99.737			
41	0.051	0.119	99.856			
42	0.044	0.102	99.958			
43	0.018	0.042	100.000			

Extraction Method: Principal Component Analysis.